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A stylized illustration of wheat stalks in black and white, positioned on the left side of the cover. The stalks are depicted with sharp, angular leaves and a cluster of grain heads at the top. One grain head is detailed with black and white diagonal stripes.

# DURUM WHEAT QUALITY REPORT

Physical, Chemical, Milling, and Spaghetti Characteristics

United States Department of Agriculture  
Agricultural Research Service  
North Central Region







## **DURUM WHEAT QUALITY REPORT**

**ON SAMPLES RECEIVED FROM THE 1993 CROP**

**Spring and Durum Wheat Quality Laboratory  
USDA, Agricultural Research Service  
Harris Hall, NDSU  
Fargo, North Dakota 58105**



UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
in cooperation with  
STATE AGRICULTURAL EXPERIMENT STATION

QUALITY EVALUATION OF DURUM WHEAT CULTIVARS

1993 CROP<sup>1/</sup>

by

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1/ This report represents cooperative investigations on the quality of Durum wheat cultivars from the 1993 crop. Some of the results presented have not been sufficiently confirmed to justify varietal release. Confirmed results will be published through established channels. Cooperators submitting samples for analysis have been given analytical data on their samples prior to release of this report. The report is primarily a tool for use by cooperators and their official staff and by those individuals having direct and special interest in the development of agricultural research programs.

This report was compiled by the Agricultural Research Service, U. S. Department of Agriculture. Special acknowledgment is made to the North Dakota State University for use of their facilities and the services provided in support of these studies. The report is not intended for publication and should not be referenced in either literature citations or quoted in publicity and advertising. Use of the data may be granted for certain purposes upon written request to the agency or agencies involved.

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## INTRODUCTION

The thirtieth Durum Wheat Quality Report contains data for the 1993 crop. Samples of standard cultivars and new selections of durum wheat grown in cooperative experiments in the durum wheat regions of the United States were milled and evaluated by the Hard Red Spring and Durum Wheat Quality Laboratory on the campus of North Dakota State University, Fargo, ND. Methods and techniques are described in detail in the text of the report.

Durum wheat samples of at least 2 kg were milled in a Buhler experimental mill, or macro procedure, and further processed into spaghetti. Smaller wheat samples were milled using the micro procedure and were not processed into spaghetti. Although, small samples having acceptable kernel characteristics and dust color scores, if possible, should be included in the macro procedure the following year.

The purpose of this report is to make available to cooperators the quality data on standard cultivars and new selections of durum wheat from the 1993 crop.



## **SOURCE OF THE 1993 CROP SAMPLES**

Tests were performed on 548 samples from 14 stations in five states (California, Arizona, North Dakota, Montana, and South Dakota) and one Canadian location. Data presented in this report are from the Field Plot Nursery, Uniform Regional Nursery, and Advanced Nursery. Durum samples from the Special Nursery were not included in this report since they were of interest only to the breeders.

### **FIELD PLOTS - 4**

Minot - North Dakota

### **UNIFORM REGIONAL NURSERY - 288**

Day County and Selby - South Dakota

Bozeman and Sidney - Montana

Dickinson, Carrington, Williston,  
and Langdon - North Dakota

Swift Current - Saskatchewan

### **ADVANCED NURSERY - 119**

Kings Co., Imperial Valley and Davis - California

Tucson - Arizona

### **SPECIAL NURSERY - 137**

Yuma - Arizona

El Centro - California

# 1993 UNIFORM REGIONAL DURUM NURSERY

## LIST OF ENTRIES

| Entry No. | Entry    | Pedigree  | P.I. No. | Origin  |
|-----------|----------|---|----------|---------|
| 1         | MINDUM   |   | 5296     | MN      |
| 2         | STOA     |   |          | ND-USDA |
| 3         | WARD     |   | 15892    | ND-USDA |
| 4         | RUGBY    |   | 17284    | ND-USDA |
| 5         | VIC      |   | 17789    | ND-USDA |
| 6         | LLOYD    |   | 476211   | ND-USDA |
| 7         | MONROE   |   | 478289   | ND-USDA |
| 8         | RENVILLE |   | 510696   | ND-USDA |
| 9         | MEDORA   |   |          | ND-USDA |
| 10        | SCEPTRE  |   |          | U.SASK  |
| 11        | D87122   | D8024/MONORE  |          | ND-USDA |
| 12        | D87130   | D8024/MONROE  |          | ND-USDA |
| 13        | D87240   | D7798/DT367   |          | ND-USDA |
| 14        | D87436   | W85 GH-227/D804ND-USDA                              |          |         |
| 15        | D87450   | D82104/AUST#820198/ /D82108                         |          | ND-USDA |
| 16        | D88273   | D8189/D81141  |          | ND-USDA |
| 17        | D88289   | D8189/D81141  |          | ND-USDA |
| 18        | D88303   | D82106/D8179  |          | ND-USDA |
| 19        | D88450   | JO'S'/CR'S'/ /D.COLL.01/3<br>/DOMIL/4/D8288/5/D8261 |          | ND-USDA |
| 20        | D88793   | D81170/D8177  |          | ND-USDA |
| 21        | D89008   | D81154/D7925  |          | ND-USDA |
| 22        | D89111   | D8219/D8305   |          | ND-USDA |
| 23        | D89135   | D8193/D8335   |          | ND-USDA |
| 24        | D89172   | D8191/D81114  |          | ND-USDA |
| 25        | D89235   | D8269/D81154  |          | ND-USDA |
| 26        | D89263   | NAHD81-485/D8194                                    |          | ND-USDA |
| 27        | D89331   | D8372/D8325   |          | ND-USDA |
| 28        | D8460    | D8030/D8016   |          | ND-USDA |
| 29        | D89424   | D86519/D8374  |          | ND-USDA |
| 30        | D89538   | GS'S'/CR'S'/3/021563/AA'S/<br>/CT/4/B.STE/D8261     |          | ND-USDA |
| 31        | D89-3464 | -----   |          | AGRIPRO |
| 32        | D89-476  | LLOYD/MEDORA  |          | AGRIPRO |



## METHODS

Methods used in testing samples were essentially the same as provided in the previous report.

Briefly, the following methods and terminologies were applied:

Test Weight Per Bushel - The weight per Winchester bushel of dockage-free wheat subsequent to passing the sample through a Carter-Day dockage tester<sup>4/</sup>.

Thousand Kernel Weight - The 1000 kernel weight was determined from a 10 gm sample of cleaned, hand-picked wheat using a Seedburo Seed Counter<sup>4/</sup>.

Kernel Size - The percentage of the size of the kernels [large, medium, and small] was determined on a wheat sizer as described by Shuey<sup>5/</sup>.

The sieves of the sizer were clothed as follows:

Top Sieve - Tyler # 7 with 2.92 mm opening  
Middle Sieve - Tyler # 9 with 2.24 mm opening  
Bottom Sieve - Tyler #12 with 1.65 mm opening

Protein Content - Both the Leco FP-428 Nitrogen Determinator and the near infrared technique were used to determine protein content. Nitrogen values, as determined by the Leco FP-428 Nitrogen Determinator procedure, were multiplied by 5.7 to calculate protein values.

Hardness Test - The procedure (AACC Method 39-70A) requires grinding durum wheat samples with a UDY grinder, and obtaining data from a Technicon 450 near infrared analyzer. Wavelengths used were 1680 nm and 2230 nm. This procedure was developed by Mr. Karl Norris, USDA, Beltsville through a collaborative research project in which this Laboratory also participated. Durum wheat hardness scores for the 1993 uniforms ranged 127 to 61 with an average of 103.

<sup>4/</sup> Mention of a trademark name or proprietary product does not constitute a guarantee or warranty of the product by the U. S. Department of Agriculture, and does not imply its approval to the exclusion of other products that may also be suitable.

<sup>5/</sup> Shuey, William C. A wheat sizing technique for predicting flour milling yield. Cereal Sci. Today 5:71 (1960).

Milling - All samples were cleaned by passing the wheat through a Carter-Day dockage tester and through a modified Forster scourer Model 6. The clean, dry wheat from the larger 2 kg samples was tempered in three stages: first to 12.5% moisture at least 72 hours prior to the second stage; second, an increase of 2.0% moisture to a cumulative moisture of 14.5% for 18 hours; and third, an increase of 3.0% moisture to a cumulative moisture content of 17.5%, 45 minutes prior to milling. The smaller 150 gram samples were pretempered to 12.5% moisture for at least 72 hours. Following, they were tempered to 16.5% moisture and allowed to stand overnight prior to milling.

Samples from the Field Plot, Special, and Advanced Nurseries were milled in a Buhler experimental mill specially designed for milling durum wheat. The mill is equipped with corrugated rolls throughout, and the semolina is purified on a Miag laboratory purifier. All stock is handled pneumatically. The mill flow is shown on page 9. Prior to milling, the Buhler mill and purifiers were adjusted to maximize semolina yield, yet keep the speck count to an acceptable level.

Samples from the Uniform, and Special Nurseries were milled in a Brabender Quadrumat Junior mill equipped with #24GG on the drum sieve. The flow diagram of this system is shown on page 10. The unpurified semolina was rebolted for 30 sec on a strand sifter equipped with a U.S. #35 Tyler sieve. The throughs of the #35 Tyler sieve were classified as rebolted semolina. The overs of the #35 Tyler sieve were reground and sieved again for 30 seconds. The throughs were combined with the first sieving, and the combined semolina represented the material tested. The overs of the #35 Tyler sieve were classified as crude shorts, and overs of the rotating #24GG sieve were classified as bran.

Semolina Extraction - For both the macro and micro method of milling, the percent semolina extraction was calculated on a total product basis.

Speck Count - The number of specks was determined from three separate one-inch square areas of semolina enclosed by a special glass and frame. Any materials other than pure endosperm chunks, such as bran particles, were considered specks. The average of three readings was converted to the number of specks per 10 sq in (speck count). Speck count is determined only on the macro milled samples.



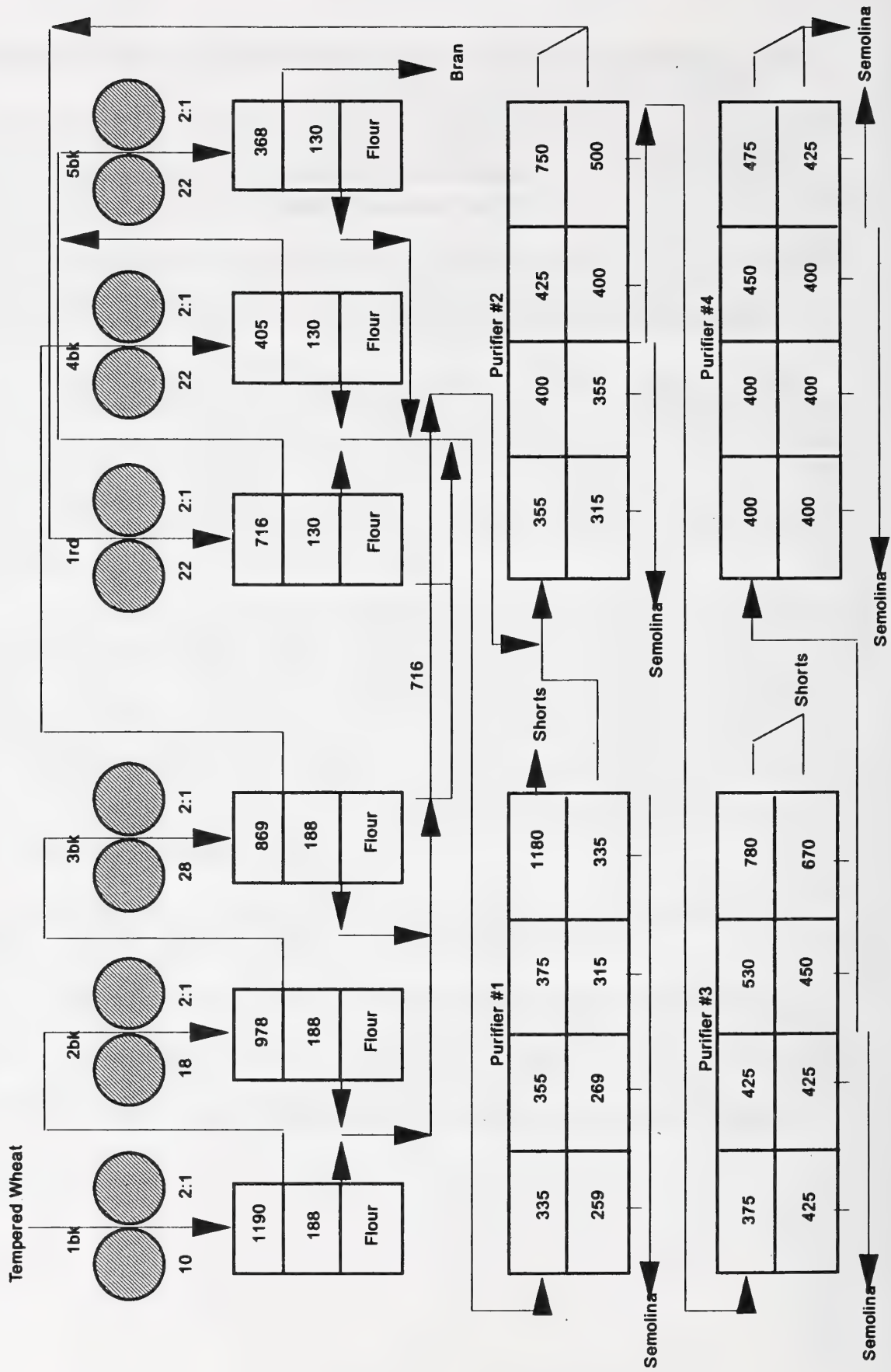
Mixograph Analysis - Mixing properties were determined from a constant weight of semolina (10 g, mb) and water (6.0 ml).

Mixogram Pattern - The reference mixograms shown on page 19 illustrate different types of mixogram patterns. A single number is assigned each pattern to classify the curves. Larger numbers indicate stronger mixing characteristics.

Color Score - The color of the spaghetti or semolina has generally been accepted as the most important single grading factor. A deep amber or golden color is most preferable. The amount of yellow pigmentation determines the color.

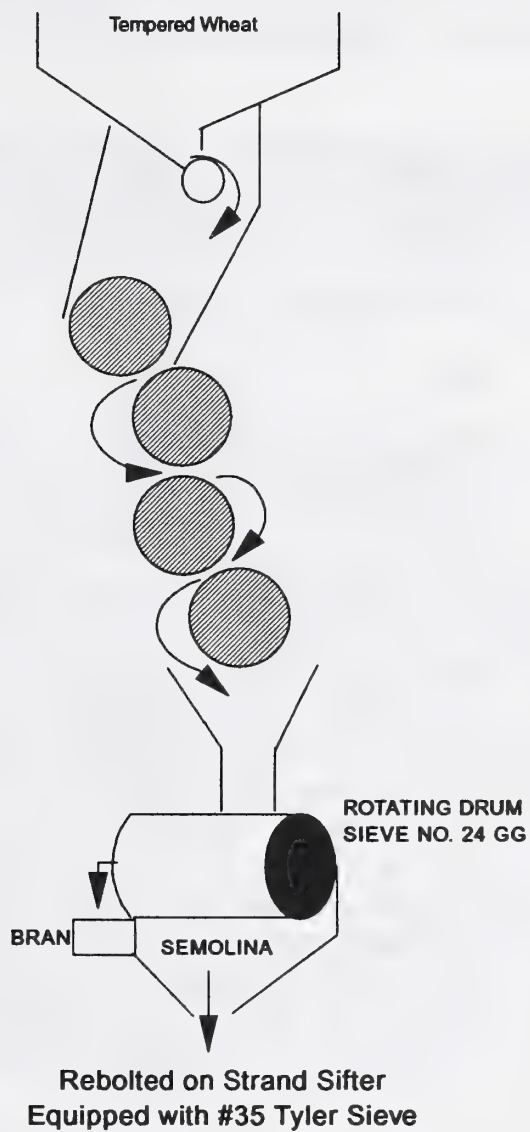
Cooked Weight - Weight of cooked spaghetti determined after cooking, rinsing, and draining.

FLOW DIAGRAM FOR LARGE DURUM WHEAT SAMPLES (MACRO PROCEDURE)





# FLOW DIAGRAM FOR SMALL DURUM WHEAT SAMPLES (MICRO PROCEDURE)



Semolina and Spaghetti Color - A Minolta CR-310 series ChromaMeter was used to calculate an absolute value of a standard semolina and spaghetti sample in the  $L^* a^* b^*$  color system. In this system,  $L^*$  refers to lightness and  $a^*$  and  $b^*$  are the chromaticity coordinates ( $b^*$  values relate to the blue - yellow chromaticity coordinates). A target  $b^*$  value was obtained from semolina and spaghetti processed from the standard cultivar Vic. Color scores were derived from  $L$  and  $b$  values where  $\text{score} = L + (b^2) / 20$ . Because of the importance of yellow pigmentation, the intensity of  $b$  was weighted twice.

MACRO Spaghetti Processing - Spaghetti was processed on a semi-commercial scale pasta extruder (DEMACO). The controls and samples were processed under the following extruding conditions.

Temperature . . . . 49.5°C

Rate. . . . . 12 rpm

Absorption. . . . . 32.5%

Vacuum. . . . . 18 in Hg

These were the optimum conditions for processing spaghetti.

Processing spaghetti in the laboratory involved premixing 1000-g batches of semolina in a Hobart C-100-T mixer equipped with a pastry knife agitator. The contents were mixed at a slow speed for approximately 10 seconds while water was added to the semolina. Upon addition of all the water to obtain 32.5% absorption, the contents were blended at high speed for 30 seconds. The mixer was then stopped to scrape down the sides of the bowl, and blending continued for an additional 90 seconds to complete the premix stage. The premixed pasta was then transferred to the vacuum mixer of the press and extruded through an 84-strand 0.043 in. Teflon spaghetti die. A jacketed extension tube (9-1/4" long x 1-3/4" inside diameter) was attached to the semi-commercial pasta extruder to allow a longer time for hydration of the semolina and minimize the number of white specks (unhydrated semolina) in the spaghetti. Extrusion temperature was controlled by a circulating water bath.



Spaghetti Drying - Spaghetti was dried in an experimental pasta dryer for an 18 hour, computer controlled cycle. The drying cycle was a modification of that described by Gilles, Sibbitt and Shuey<sup>6/</sup>. During the drying period, the humidity of the dryer was decreased linearly from 95 to 50% R.H. The temperature was held at 40°C for the first 10 hour and was then decreased linearly from 40°C to 25°C during the last 8 hours of the cycle.

### Cooking Characteristics of Spaghetti

#### A. Cooking Procedure

Spaghetti (10 g) which had been broken into lengths of approximately 5 cm, was placed into 300 ml of boiling water in a 500 ml beaker. After 12 min. cooking, the samples were washed thoroughly with distilled water in a Buchner funnel, allowed to drain for 2 min., and then weighed to determine cooked weight.

#### B. Firmness Score

Two strands of cooked spaghetti were placed on a plexiglass plate and sheared at a 90° angle with a special plexiglass tooth. A continuous recording of distance versus force was made by an Instron instrument during the operation. An automatic integrator was used to calculate the area under the curve (g-cm) which was the amount of work required to shear the cooked spaghetti. To measure firmness, the average of three integrator scores was used, and the average work to shear represented a measure of spaghetti firmness.

Calculations were as follows:

$$E = 0.0216 \times A \text{ (g-cm)}$$

A = Average integrator reading

E = Area of curve expressed as g-cm (work)

The higher the value, the firmer the spaghetti. A value of approximately 7.00 appears to be preferred.

#### C. Residue

Weight of the solids remaining after the combined cooking and washing water was evaporated.

<sup>6/</sup>Gilles, K.A., Sibbitt, L.D., and Shuey, W.C. Automatic laboratory dryer for macaroni products. Cereal Sci. Today 11:322 (1966).

## DISCUSSION

The following discussion relates the basic techniques and criteria used in the quality evaluation of durum wheat cultivars. Testing factors used to determine the quality characteristics and final evaluation of a particular sample include kernel characteristics, milling performance, and cooking properties.

Each evaluation factor can be important. A sample could be of sufficiently poor quality for a given factor to eliminate it from possible future testing. However, a sample submitted for the first time and found to show little promise should be tested again to confirm the first evaluation. A sample which is consistently rated as little promise or no promise should be discontinued.

Data presented in this report were processed by using the Statistical Analysis System (SAS Institute, Inc., SAS Circle, Box 8000, Cary, NC 27511). The program developed from this system allows flexibility within the quality grading factors. This should allow the evaluations to relate more directly to industry and consumer requirements.<sup>21</sup>

The evaluation system consists of 9 dependent variables. These include test weight, 1000 kernel weight, percent small kernels, wheat protein, total extraction, semolina extraction, speck count, semolina protein, and spaghetti firmness score. Eight additional variables are measured and included in the tables for the reader's use and information but are not used in the computerized evaluation of the samples. These are percent large kernels, hardness, mixograph score, wheat ash, semolina ash, falling number, cooked weight, and cooking residue.

After computing an average of each of the 9 variables for the standards from a station or nursery, established values for individual samples are subtracted from each of the standard averages to determine major (MJ) and minor (MI) faulting limits. There are two exceptions where precise values have been assigned, which are independent of the station standards. The first exception is wheat protein, where percentages below 11.5% are classified as MJ faults, and percentages between 11.5% - 12.5% are MI faults (14% m.b.). The second exception is semolina protein, where percentages between 11.0% and 11.5% are classified as MI faults (14% m.b.). Hence, the wheat and semolina protein faulting values remain the same for all stations and nurseries.

<sup>21</sup>Nolte, L. L., Youngs, V. L., Crawford, R. D. and Kuerth, W. H. 1985. Computer program evaluation of hard red spring wheat. *Cereal Foods World* 30:227-229.



## SELECTION OF STANDARDS

Whenever possible, the standards selected were commercial cultivars grown at each location or in each nursery. In the tables of data, the cultivars used as standards are identified by an "s" in the second column. At the bottom of each table are cited "average of standards". Quality deviation from these values determine the major and minor faults. In nurseries where breeders did not grow a cultivar for standard comparison with other selections, the North Dakota cultivar Vic was used as the standard. Vic, however, was not necessarily grown at the particular nursery. Other deviations are footnoted in the tables.

## HOW SAMPLES ARE SCORED

Each sample is assigned an evaluation score of 4. Major and minor faults determined from the data entered into the computer will reduce this score, depending upon the quality factor being faulted. The effects of the different quality faults are shown in the following table:

DURUM PROGRAM FAULTING AND SCORING VALUES

| Variable          | Effect on Evaluation |       | Score <sup>b/</sup> |       |
|-------------------|----------------------|-------|---------------------|-------|
|                   | Range <sup>a/</sup>  |       | Minor               | Major |
|                   | Minor                | Major | fault               | fault |
| Test Wt. (lb/bu)  | -2.2                 | -3.1  | -                   | -1    |
| 1000 KWT (g)      | -2.1                 | -5.1  | -                   | -1    |
| Small Kernels (%) | +5                   | +10   | -                   | -1    |
| Wheat Prot. (%)   | 12.5                 | 11.5  | -1                  | -2    |
| Tot. Ext. (%)     | -2.5                 | -3.5  | -1                  | -2    |
| Semo. Ext. (%)    | -3.0                 | -4.0  | -1                  | -2    |
| Specks/10 sq. in. | +10                  | +15   | -                   | -2    |
| Semo. Prot. (%)   | 11.5                 | 11.0  | -1                  | -2    |
| Firmness (g cm)   | -1.5                 | -2.25 | -1                  | -2    |

a/ Wheat and semolina protein percents are fixed lower limits for faults. All other values represent the deviation from the average of the standards required to warrant a minor or major fault.

b/ These values are subtracted from a beginning score of 4.

## **EXPERIMENTAL RESULTS - 1993 CROP**

The results are tabulated and presented in the following order: Field Plot Nursery, Table 1; Uniform Regional Nursery, Tables 2-10; and Advanced Nursery, Tables 17-20.

### **FIELD PLOT NURSERY**

#### **Minot, North Dakota - Table1**

Four samples were received from this station, all of which were commercial cultivars. Samples were milled, and the semolina was processed into spaghetti using the macro method. Vic was used as the standard.



## **UNIFORM REGIONAL NURSERY**

A total of two hundred eighty - eight samples were submitted for testing. Thirty-two cultivars and experimental lines were received from nine stations in three states and one Canadian province. These included nine commercial durum cultivars, one commercial HRS wheat cultivar, and twenty - two experimental durum lines. Quality data on individual samples from each of the nine nurseries is shown in Tables 2-10. Following in Tables 11-16 is a statistical evaluation of each cultivar and experimental line showing the overall mean, SD, minimum and maximum values, and range of values for seven selected variables.

## **ADVANCED NURSERY**

A total of 119 samples were received from four stations in two states. All samples were milled in a Buhler experimental mill, and the semolina was processed into spaghetti.

### Imperial Valley, California - Table 17

Thirty-three samples were received from this station. Westbred 881 was used as the standard.

### Davis, California - Table 18

Thirty-one samples were received from this station. Westbred 881 was used as the standard.

### Kings Co., California - Table 19

Thirty-one samples were received from this station. Westbred 881 was used as the standard.

### Tucson, Arizona - Table 20

Twenty-four samples were received from this station. Westbred 881 was used as the standard.

**EXPLANATION OF ABBREVIATIONS  
LISTED UNDER THE HEADINGS AND UNDER  
MINOR AND MAJOR DEFICIENCIES IN TABLES**

S or STD = Standard  
TW = Test Weight  
1000 KWT or KW = 1000 Kernel Weight

LG = % Large Kernels  
SM = % Small Kernels

WHT ASH = Wheat Ash  
WHT PRO or WP = Wheat Protein  
HRD = Hardness  
TOTL EXTR or TX = Total Extraction (Semolina  
Plus Flour)  
SEMO EXTR or SX = Semolina Extraction

MX = Mixograph Score (The higher the number,  
the stronger the curve)  
SPK or SK = Semolina Speck Count  
SEMO ASH = Semolina Ash

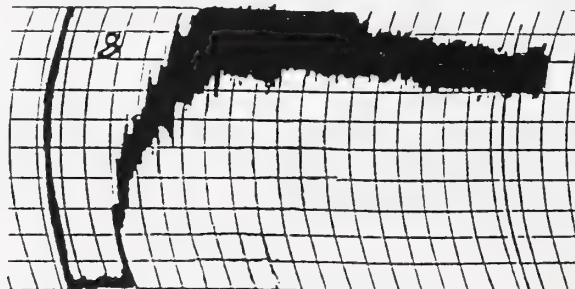
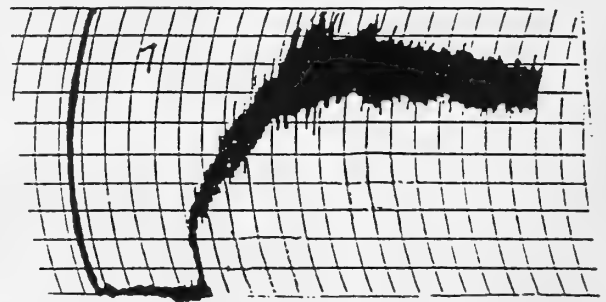
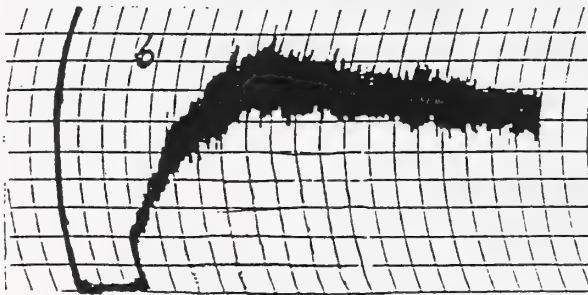
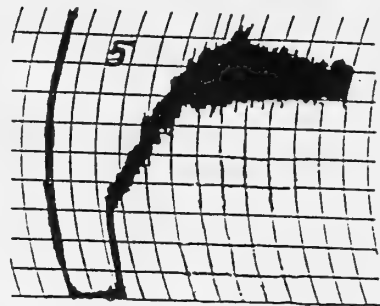
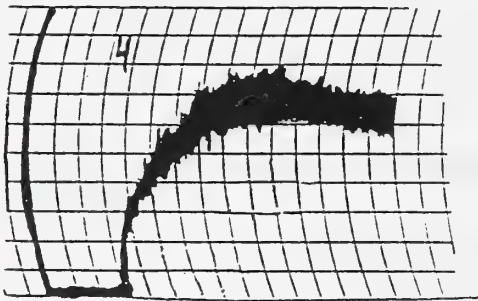
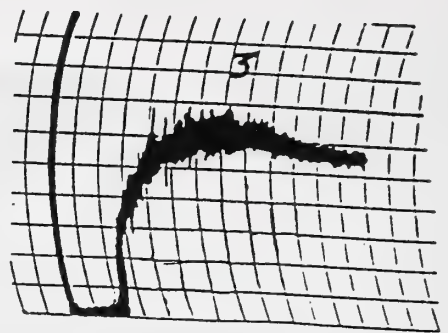
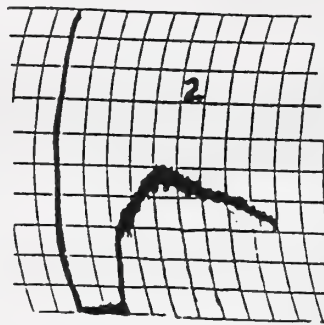
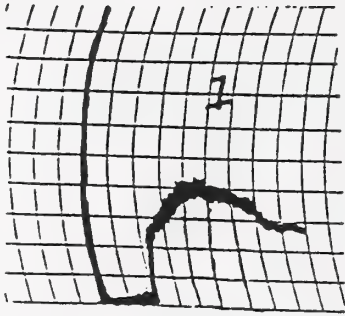
FALL NO = Semolina Falling Number Value  
(Values above 300 are desired)  
SEMO PRO or SP = Semolina Protein

CWT = Cooked Weight  
FIRM or FR = Cooked Spaghetti Firmness Score  
(Approx. 6.50 to 8.50 is the  
desirable range)

RES = Residue in Water of Cooked Spaghetti  
SCORE = Sample Evaluation Number (Example 4 =  
Good Promise)



## STANDARD MIXOGRAMS PATTERNS



QUALITY DATA OF DURUM SAMPLES 1993 CROP  
STATE=NORTH DAKOTA STATION=MINOT NURSERY=FIELD PLOT

TABLE 1

| VARIETY  | STD | TEST |      | 1000 |      | SIZING |      | WHT |      | WHT  |      | HARD- |      | FALL |   | TOTL |   | SEMO |   | SEMO |     | DUST  |       | MIXO |
|----------|-----|------|------|------|------|--------|------|-----|------|------|------|-------|------|------|---|------|---|------|---|------|-----|-------|-------|------|
|          |     | WT   | #/BU | K.WT | G.   | LG     | %    | SM  | ASH  | PRO  | %    | NESS  | NO.  | SEC  | % | EXTR | % | EXTR | % | SPK  | ASH | COLOR | SCORE |      |
| MONROE   |     | 60.6 | 39.2 | 59   | 2    | 1.81   | 13.2 | 118 | 377  | 73.3 | 54.7 | 60    | 0.66 | 7.20 | 6 |      |   |      |   |      |     |       |       |      |
| RENVILLE |     | 59.7 | 30.5 | 9    | 1.91 | 11.8   | 114  | 380 | 75.9 | 56.8 | 57   | 0.66  | 7.10 | 5    |   |      |   |      |   |      |     |       |       |      |
| RUGBY    |     | 61.0 | 40.0 | 57   | 1    | 1.81   | 12.4 | 331 | 75.0 | 56.7 | 67   | 0.67  | 7.00 | 2    |   |      |   |      |   |      |     |       |       |      |
| VIC      | S   | 61.1 | 40.7 | 53   | 2    | 1.87   | 12.3 | 359 | 75.0 | 58.2 | 77   | 0.70  | 7.20 | 4    |   |      |   |      |   |      |     |       |       |      |

QUALITY DATA OF DURUM SAMPLES 1993 CROP  
STATE=NORTH DAKOTA STATION=MINOT NURSERY=FIELD PLOT

| VARIETY  |  | STD | SEMO |      | VIS  | COOK | FIRM- | SCORE |   | DEFICIENCIES |    |    |    |    |    |    |    |    |    |    |  |
|----------|--|-----|------|------|------|------|-------|-------|---|--------------|----|----|----|----|----|----|----|----|----|----|--|
|          |  |     | PRO  | %    | COL  | WT   | NESS  | RES   | G | TW           | KW | SM | WP | TX | SX | DU | SK | SP | VI | FR |  |
| MONROE   |  |     | 12.5 | 7.90 | 32.2 | 6.44 | 6.4   | 4     |   |              |    |    |    |    |    |    |    |    |    |    |  |
| RENVILLE |  |     | 11.2 | 8.00 | 31.3 | 5.79 | 6.8   | 2     |   |              | MJ | MI |    |    |    |    |    |    |    | MI |  |
| RUGBY    |  |     | 11.8 | 7.60 | 29.8 | 5.42 | 6.6   | 4     |   |              |    |    |    |    |    |    |    |    |    |    |  |
| VIC      |  | S   | 11.9 | 7.70 | 31.7 | 5.88 | 7.3   | 4     |   |              |    |    |    |    |    |    |    |    |    |    |  |

# DEFICIENCIES

AVG OF STANDARDS 61.1 40.7 2 12.3 75.0 58.2 7.20 77 11.9 7.70 5.88  
 MINOR FAULTING VALUES 58.9 38.6 7 12.5 72.5 55.2 6.95 87 11.5 7.45 4.38  
 MAJOR FAULTING VALUES 58.0 35.6 12 11.5 71.5 54.2 6.75 92 11.0 7.25 3.63  
 \*\*EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE



QUALITY DATA OF DURUM SAMPLES 1993 CROP  
STATE=SOUTH DAKOTA STATION=DAY CO. NURSERY=UNIFORM

TABLE 2

| VARIETY  | STD | TEST<br>WT<br>#/BU | 1000<br>K.WT<br>G. | SIZING<br>LG SM<br>% % | WHT<br>PRO<br>14% | HARD<br>NESS | SEMO<br>EXTR<br>% | DUST<br>COLOR | MIXO | SCORE<br>*** | DEFICIENCIES<br>TW KW SM WP SX |
|----------|-----|--------------------|--------------------|------------------------|-------------------|--------------|-------------------|---------------|------|--------------|--------------------------------|
| MINDUM   |     | 52.4               | 22.2               | 7 16                   | 15.5              | 89           | 49.7              | 6.3           | 3    | 4            |                                |
| STOA     |     | 48.4               | 19.1               | 5 19                   | 15.5              | 70           | 51.0              | 5.5           | 8    | 4            | MI                             |
| WARD     | S   | 53.6               | 25.5               | 9 10                   | 14.5              | 99           | 53.8              | 6.7           | 3    | 4            |                                |
| RUGBY    |     | 54.7               | 27.1               | 6 9                    | 14.2              | 107          | 53.2              | 6.8           | 2    | 4            |                                |
| VIC      | S   | 49.8               | 22.6               | 5 15                   | 16.1              | 101          | 47.4              | 6.8           | 7    | 4            |                                |
| LLOYD    | S   | 44.0               | 17.5               | 2 29                   | 17.7              | 95           | 41.8              | 6.7           | 8    | 1            | MJ MI MJ                       |
| MONROE   |     | 49.5               | 25.0               | 9 12                   | 14.9              | 91           | 49.7              | 6.9           | 6    | 4            |                                |
| RENVILLE |     | 50.3               | 21.0               | 2 19                   | 16.2              | 113          | 48.7              | 6.7           | 8    | 4            |                                |
| MEDORA   | S   | 49.9               | 22.4               | 6 15                   | 16.1              | 109          | 47.4              | 6.8           | 8    | 4            |                                |
| SCEPTRE  |     | 49.7               | 22.1               | 7 13                   | 15.6              | 102          | 47.4              | 6.7           | 7    | 4            |                                |
| D87122   |     | 49.9               | 22.0               | 7 11                   | 15.7              | 100          | 47.7              | 6.8           | 7    | 4            |                                |
| D87130   |     | 55.3               | 27.8               | 15 7                   | 14.9              | 102          | 50.6              | 6.6           | 5    | 4            |                                |
| D87240   |     | 50.5               | 25.0               | 21 5                   | 15.9              | 103          | 48.1              | 7.0           | 7    | 4            |                                |
| D87436   |     | 48.5               | 20.0               | 5 19                   | 15.5              | 100          | 46.5              | 6.8           | 5    | 4            |                                |
| D87450   |     | 48.3               | 22.8               | 4 15                   | 14.4              | 86           | 52.3              | 6.9           | 5    | 4            |                                |
| D88273   |     | 50.5               | 22.4               | 4 11                   | 16.4              | 107          | 45.2              | 6.8           | 8    | 4            |                                |
| D88289   |     | 54.0               | 24.3               | 9 8                    | 15.0              | 96           | 47.8              | 7.0           | 6    | 4            |                                |
| D88303   |     | 46.7               | 21.1               | 5 21                   | 15.1              | 96           | 45.2              | 6.8           | 7    | 4            | MI                             |
| D88450   |     | 49.4               | 20.1               | 7 13                   | 15.4              | 93           | 44.2              | 6.6           | 7    | 3            |                                |
| D88793   |     | 49.8               | 24.0               | 9 9                    | 16.8              | 115          | 45.9              | 6.9           | 8    | 4            |                                |
| D89008   |     | 51.9               | 21.7               | 5 18                   | 15.8              | 107          | 47.4              | 7.0           | 7    | 4            |                                |
| D89111   |     | 50.7               | 23.3               | 15 7                   | 15.7              | 99           | 46.5              | 7.1           | 7    | 4            |                                |
| D89135   |     | 52.9               | 24.0               | 10 11                  | 16.1              | 100          | 47.5              | 7.1           | 7    | 4            |                                |
| D89172   |     | 52.4               | 22.3               | 14 9                   | 15.1              | 100          | 50.6              | 6.9           | 6    | 4            |                                |
| D89235   |     | 52.6               | 24.0               | 7 9                    | 14.6              | 96           | 51.0              | 7.0           | 5    | 4            |                                |
| D89263   |     | 51.8               | 20.9               | 3 18                   | 16.2              | 105          | 48.4              | 6.8           | 8    | 4            |                                |
| D89331   |     | 49.8               | 22.5               | 7 16                   | 15.5              | 101          | 46.2              | 6.9           | 8    | 4            |                                |
| D8460    |     | 53.3               | 25.5               | 9 7                    | 14.9              | 106          | 52.3              | 7.1           | 5    | 4            |                                |
| D89424   |     | 49.0               | 21.3               | 3 21                   | 15.0              | 83           | 47.4              | 6.7           | 5    | 4            |                                |
| D89538   |     | 47.4               | 22.3               | 14 9                   | 15.5              | 94           | 46.2              | 6.4           | 4    | 4            |                                |
| D89-346  |     | 48.6               | 22.0               | 8 12                   | 15.3              | 97           | 46.8              | 6.8           | 5    | 4            |                                |
| D89476   |     | 51.7               | 24.2               | 11 10                  | 16.0              | 98           | 50.6              | 6.7           | 7    | 4            |                                |

DEFICIENCIES TW KW SM WP SX  
AVG OF STANDARDS 49.3 22.0 17 16.1 47.6  
MINOR FAULTING VALUES 47.1 19.9 22 12.5 44.6  
MAJOR FAULTING VALUES 46.2 16.9 27 11.5 43.6

\*\*\*EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

TABLE 3

QUALITY DATA OF DURUM SAMPLES 1993 CROP  
STATE=SOUTH DAKOTA STATION=SELBY NURSERY=UNIFORM

| VARIETY  | STD | TEST<br>WT<br>#/BU | 1000<br>K.WT<br>G. | SIZING<br>LG SM<br>% % | WHT<br>PRO<br>14% | HARD<br>NESS | SEMO<br>EXTR<br>% | DUST<br>COLOR | MIXO | SCORE<br>*** | DEFICIENCIES<br>TW KW SM WP SX |
|----------|-----|--------------------|--------------------|------------------------|-------------------|--------------|-------------------|---------------|------|--------------|--------------------------------|
| MINDUM   |     | 58.4               | 28.8               | 11                     | 9                 | 13.0         | 93                |               |      |              |                                |
| STOA     |     | 51.7               | 22.0               | 5                      | 11                | 14.7         | 75                | 6.5           | 2    | 4            |                                |
| WARD     | S   | 57.1               | 30.6               | 15                     | 5                 | 13.7         | 110               | 5.6           | 8    | 3            | MI MJ                          |
| RUGBY    |     | 57.7               | 31.5               | 18                     | 5                 | 13.7         | 116               | 6.9           | 2    | 4            |                                |
| VIC      | S   | 56.6               | 30.1               | 17                     | 5                 | 13.7         | 104               | 6.9           | 2    | 4            |                                |
| LLOYD    | S   | 49.3               | 24.0               | 2                      | 17                | 15.3         | 117               | 7.0           | 6    | 4            |                                |
| MONROE   |     | 56.1               | 34.8               | 27                     | 4                 | 13.0         | 107               | 7.0           | 8    | 2            | MJ MI MI MI                    |
| RENVILLE |     | 56.2               | 27.2               | 4                      | 13                | 13.7         | 108               | 7.0           | 5    | 4            |                                |
| MEDORA   | S   | 55.0               | 28.5               | 13                     | 6                 | 14.7         | 113               | 6.9           | 6    | 4            |                                |
| SCEPTRE  |     | 55.3               | 28.6               | 19                     | 6                 | 13.5         | 105               | 7.1           | 6    | 4            |                                |
| D87122   |     | 55.8               | 31.1               | 22                     | 4                 | 13.9         | 102               | 6.7           | 5    | 4            |                                |
| D87130   |     | 55.9               | 36.1               | 35                     | 3                 | 13.3         | 109               | 7.0           | 5    | 4            |                                |
| D87240   |     | 51.4               | 28.2               | 21                     | 5                 | 14.4         | 105               | 6.8           | 4    | 4            |                                |
| D87436   |     | 56.1               | 27.9               | 8                      | 9                 | 13.6         | 109               | 7.2           | 7    | 4            | MI                             |
| D87450   |     | 53.5               | 26.8               | 6                      | 10                | 12.8         | 89                | 7.1           | 6    | 4            |                                |
| D88273   |     | 56.4               | 28.2               | 7                      | 8                 | 14.7         | 114               | 7.1           | 6    | 4            |                                |
| D88289   |     | 55.9               | 29.1               | 11                     | 6                 | 13.4         | 96                | 7.0           | 8    | 4            |                                |
| D88303   |     | 56.2               | 32.4               | 21                     | 5                 | 13.2         | 109               | 7.2           | 6    | 4            |                                |
| D88450   |     | 53.4               | 25.3               | 7                      | 13                | 14.0         | 98                | 6.8           | 6    | 4            | MI                             |
| D88793   |     | 52.4               | 27.4               | 9                      | 6                 | 15.3         | 113               | 7.1           | 8    | 4            |                                |
| D89008   |     | 55.8               | 27.4               | 5                      | 11                | 13.5         | 105               | 7.1           | 8    | 4            |                                |
| D89111   |     | 55.2               | 28.9               | 22                     | 5                 | 14.5         | 105               | 7.1           | 5    | 4            |                                |
| D89135   |     | 56.8               | 29.2               | 15                     | 7                 | 14.4         | 106               | 7.3           | 6    | 4            |                                |
| D89172   |     | 55.7               | 27.0               | 13                     | 9                 | 14.1         | 105               | 7.2           | 6    | 4            |                                |
| D89235   |     | 55.7               | 26.7               | 9                      | 7                 | 13.5         | 105               | 7.1           | 7    | 4            |                                |
| D89263   |     | 57.6               | 29.0               | 7                      | 8                 | 13.3         | 103               | 7.1           | 5    | 4            |                                |
| D89331   |     | 59.1               | 32.7               | 19                     | 5                 | 12.1         | 96                | 7.2           | 6    | 4            | MI                             |
| D8460    |     | 55.7               | 26.7               | 13                     | 8                 | 13.7         | 102               | 7.0           | 4    | 3            |                                |
| D89424   |     | 53.0               | 27.2               | 3                      | 13                | 13.5         | 108               | 7.1           | 4    | 4            |                                |
| D89538   |     | 50.6               | 25.1               | 19                     | 6                 | 14.7         | 94                | 6.9           | 4    | 4            |                                |
| D89-346  |     | 54.3               | 27.7               | 13                     | 8                 | 13.9         | 101               | 6.6           | 4    | 3            | MJ MI                          |
| D89476   |     | 56.1               | 32.4               | 24                     | 5                 | 13.6         | 104               | 6.9           | 5    | 4            |                                |
|          |     |                    |                    |                        |                   |              |                   | 6.8           | 4    | 4            |                                |

DEFICIENCIES  
TW KW SM WP SX  
AVG OF STANDARDS 54.5 28.3 8 14.4 48.5  
MINOR FAULTING VALUES 52.3 26.2 13 12.5 45.5  
MAJOR FAULTING VALUES 51.4 23.2 18 11.5 44.5

\*\*\*EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

TABLE 4

QUALITY DATA OF DURUM SAMPLES 1993 CROP  
STATE=MONTANA STATION=BOZEMAN NURSERY=UNIFORM

| VARIETY  | STD | TEST<br>WT<br>#/BU | 1000<br>K.WT<br>G. | SIZING<br>LG SM<br>% % | WHT<br>PRO<br>14% | HARD<br>NESS | SEMO<br>EXTR<br>% | DUST<br>COLOR | MIXO | SCORE<br>*** | DEFICIENCIES<br>TW KW SM WP SX |
|----------|-----|--------------------|--------------------|------------------------|-------------------|--------------|-------------------|---------------|------|--------------|--------------------------------|
| MINDUM   |     | 57.7               | 34.4               | 34                     | 4                 | 11.5         | 103               | 5.9           | 2    | 1            | MJ MJ                          |
| STOA     |     | 58.1               | 33.4               | 62                     | 1                 | 12.1         | 88                | 5.5           | 4    | 2            | MJ MI                          |
| WARD     | S   | 62.7               | 42.9               | 60                     | 2                 | 13.4         | 115               | 6.6           | 2    | 4            |                                |
| RUGBY    |     | 62.3               | 39.7               | 54                     | 2                 | 12.8         | 109               | 6.6           | 1    | 4            | MI                             |
| VIC      | S   | 62.2               | 48.8               | 77                     | 1                 | 12.9         | 113               | 6.6           | 3    | 4            |                                |
| LLOYD    | S   | 55.5               | 42.7               | 58                     | 1                 | 10.9         | 100               | 5.9           | 3    | 1            | MJ MJ                          |
| MONROE   |     | 61.0               | 45.5               | 69                     | 1                 | 12.2         | 103               | 6.7           | 4    | 3            | MI MI                          |
| RENVILLE |     | 58.2               | 37.7               | 43                     | 3                 | 12.2         | 101               | 6.4           | 3    | 2            | MI                             |
| MEDORA   | S   | 58.4               | 38.8               | 53                     | 2                 | 12.6         | 108               | 6.6           | 3    | 4            | MJ MJ                          |
| SCEPTRE  |     | 50.7               | 31.4               | 46                     | 4                 | 12.5         | 93                | 6.1           | 3    | 1            | MI MJ                          |
| D87122   |     | 62.8               | 47.8               | 83                     | 0                 | 12.9         | 115               | 6.4           | 3    | 4            |                                |
| D87130   |     | 62.0               | 47.1               | 76                     | 1                 | 12.5         | 107               | 6.3           | 3    | 3            | MI                             |
| D87240   |     | 59.4               | 50.8               | 87                     | 0                 | 12.0         | 113               | 6.5           | 3    | 3            | MI                             |
| D87436   |     | 59.6               | 46.9               | 80                     | 0                 | 11.3         | 109               | 47.8          | 2    | 1            | MJ MJ                          |
| D87450   |     | 59.0               | 48.5               | 71                     | 1                 | 10.4         | 117               | 50.0          | 2    | 2            | MJ MJ                          |
| D88273   |     | 61.8               | 45.7               | 81                     | 0                 | 12.8         | 116               | 49.0          | 4    | 3            | MI                             |
| D88289   |     | 62.2               | 44.6               | 81                     | 0                 | 12.8         | 113               | 53.5          | 4    | 4            | MJ MJ                          |
| D88303   |     | 57.8               | 37.2               | 48                     | 2                 | 11.3         | 98                | 6.8           | 4    | 3            | MI                             |
| D89450   |     | 62.6               | 44.2               | 75                     | 1                 | 11.0         | 105               | 50.0          | 3    | 1            | MJ                             |
| D88793   |     | 57.0               | 38.5               | 63                     | 2                 | 12.1         | 102               | 53.2          | 2    | 2            | MJ MJ                          |
| D89008   |     | 60.1               | 41.3               | 56                     | 2                 | 12.4         | 101               | 52.6          | 2    | 3            | MI MI                          |
| D89111   |     | 61.5               | 48.1               | 83                     | 1                 | 12.9         | 114               | 55.4          | 5    | 3            | MI                             |
| D89135   |     | 61.3               | 43.9               | 77                     | 1                 | 13.0         | 108               | 51.9          | 5    | 4            |                                |
| D89172   |     | 60.0               | 44.2               | 73                     | 1                 | 12.4         | 116               | 53.2          | 5    | 4            |                                |
| D89235   |     | 61.3               | 45.5               | 77                     | 1                 | 12.4         | 105               | 51.0          | 4    | 3            | MI                             |
| D89263   |     | 61.8               | 46.5               | 73                     | 1                 | 13.1         | 104               | 53.5          | 4    | 3            | MI                             |
| D89331   |     | 63.0               | 48.8               | 71                     | 1                 | 12.4         | 108               | 51.0          | 5    | 4            | MI                             |
| D8460    |     | 61.4               | 41.7               | 71                     | 1                 | 11.2         | 110               | 56.1          | 4    | 3            | MI                             |
| D89424   |     | 59.6               | 42.2               | 52                     | 3                 | 11.1         | 105               | 52.2          | 3    | 2            | MI                             |
| D89538   |     | 60.3               | 55.6               | 90                     | 0                 | 11.3         | 111               | 52.3          | 3    | 2            | MJ MJ                          |
| D89-346  |     | 60.5               | 51.8               | 87                     | 0                 | 11.5         | 110               | 51.0          | 3    | 2            | MJ MJ                          |
| D89476   |     | 60.6               | 44.4               | 74                     | 1                 | 12.6         | 102               | 50.6          | 4    | 2            | MJ MJ                          |
|          |     |                    |                    |                        |                   |              |                   | 6.4           | 3    | 4            |                                |

DEFICIENCIES

AVG OF STANDARDS TW KW SM WP SX  
59.7 43.3 2 12.5 52.7  
MINOR FAULTING VALUES 57.5 41.2 7 12.5 49.7  
MAJOR FAULTING VALUES 56.6 38.2 12 11.5 48.7

\*\*\*EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE



QUALITY DATA OF DURUM SAMPLES 1993 CROP  
STATE=MONTANA STATION=SIDNEY NURSERY=UNIFORM

TABLE 5

| VARIETY  | STD | TEST<br>WT<br>#/BU | 1000<br>K.WT<br>G. | SIZING<br>LG SM<br>% % | WHT<br>PRO<br>14% | HARD<br>NESS | SEMO<br>EXTR<br>% | DUST<br>COLOR | MIXO | SCORE<br>*** | DEFICIENCIES<br>TW KW SM WP SX |
|----------|-----|--------------------|--------------------|------------------------|-------------------|--------------|-------------------|---------------|------|--------------|--------------------------------|
| MINDUM   |     | 58.6               | 34.4               | 33                     | 3                 | 12.3         | 103               | 6.3           | 3    | 3            | MI                             |
| STOA     |     | 57.2               | 33.6               | 50                     | 1                 | 13.1         | 73                | 5.6           | 7    | 4            | MI                             |
| WARD     | S   | 59.0               | 36.8               | 43                     | 2                 | 13.7         | 115               | 6.6           | 1    | 4            |                                |
| RUGBY    |     | 58.4               | 35.2               | 33                     | 3                 | 12.1         | 102               | 6.6           | 1    | 3            | MI                             |
| VIC      | S   | 57.2               | 35.7               | 32                     | 3                 | 12.6         | 102               | 6.7           | 2    | 4            |                                |
| LLOYD    | S   | 55.1               | 35.6               | 23                     | 5                 | 12.5         | 105               | 6.8           | 2    | 3            | MI                             |
| MONROE   |     | 57.5               | 38.2               | 39                     | 2                 | 12.0         | 99                | 6.7           | 2    | 3            | MI                             |
| RENVILLE |     | 58.2               | 33.9               | 19                     | 5                 | 12.4         | 103               | 6.5           | 2    | 3            | MI                             |
| MEDORA   | S   | 58.1               | 36.4               | 49                     | 2                 | 12.1         | 106               | 6.8           | 2    | 3            |                                |
| SCEPTRE  |     | 56.1               | 37.2               | 47                     | 3                 | 12.2         | 101               | 6.5           | 2    | 3            | MI                             |
| D87122   |     | 59.0               | 37.9               | 52                     | 1                 | 13.2         | 100               | 6.7           | 3    | 4            |                                |
| D87130   |     | 60.1               | 40.8               | 61                     | 1                 | 12.3         | 106               | 6.6           | 2    | 3            | MI                             |
| D87240   |     | 54.5               | 37.3               | 47                     | 1                 | 12.5         | 100               | 6.8           | 3    | 3            | MI                             |
| D87436   |     | 55.9               | 33.7               | 36                     | 3                 | 12.7         | 103               | 6.8           | 3    | 2            | MI                             |
| D87450   |     | 56.1               | 37.5               | 29                     | 3                 | 11.9         | 95                | 6.9           | 3    | 3            | MJ                             |
| D88273   |     | 58.2               | 36.2               | 29                     | 2                 | 12.9         | 110               | 6.7           | 3    | 4            |                                |
| D88289   |     | 58.3               | 34.0               | 27                     | 3                 | 13.0         | 102               | 7.0           | 3    | 3            | MI                             |
| D83303   |     | 59.4               | 40.5               | 55                     | 2                 | 12.5         | 107               | 6.5           | 3    | 3            | MI                             |
| D88450   |     | 57.0               | 35.1               | 45                     | 4                 | 12.6         | 97                | 6.6           | 3    | 3            | MI                             |
| D88793   |     | 57.7               | 36.5               | 47                     | 2                 | 13.3         | 119               | 6.8           | 3    | 3            | MI                             |
| D89008   |     | 57.4               | 35.0               | 22                     | 4                 | 11.9         | 98                | 6.9           | 3    | 3            | MI                             |
| D89111   |     | 59.2               | 41.3               | 65                     | 1                 | 12.9         | 114               | 7.0           | 3    | 4            |                                |
| D89135   |     | 58.6               | 36.5               | 45                     | 2                 | 12.5         | 101               | 7.0           | 4    | 3            | MI                             |
| D89172   |     | 58.7               | 38.3               | 58                     | 2                 | 12.4         | 103               | 6.8           | 3    | 3            | MI                             |
| D89235   |     | 58.4               | 36.4               | 41                     | 2                 | 11.9         | 102               | 6.8           | 3    | 3            | MI                             |
| D89263   |     | 59.5               | 37.9               | 40                     | 3                 | 12.7         | 101               | 6.7           | 3    | 3            | MI                             |
| D89331   |     | 59.9               | 42.4               | 50                     | 3                 | 11.8         | 104               | 6.8           | 2    | 3            | MI                             |
| D8460    |     | 57.8               | 36.0               | 39                     | 3                 | 12.7         | 103               | 6.8           | 2    | 4            |                                |
| D89424   |     | 56.9               | 35.5               | 29                     | 4                 | 11.7         | 97                | 6.6           | 2    | 3            | MI                             |
| D89538   |     | 55.5               | 35.8               | 59                     | 2                 | 12.5         | 95                | 6.5           | 2    | 2            | MI                             |
| D89-346  |     | 59.0               | 42.0               | 57                     | 2                 | 12.3         | 107               | 6.8           | 3    | 3            | MI                             |
| D89476   |     | 57.8               | 37.7               | 45                     | 3                 | 12.2         | 100               | 6.5           | 3    | 2            | MI                             |

DEFICIENCIES  
AVG OF STANDARDS  
MINOR FAULTING VALUES  
MAJOR FAULTING VALUES

\*\*\*EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

TABLE 6

QUALITY DATA OF DURUM SAMPLES 1993 CROP  
STATE=NORTH DAKOTA STATION=DICKINSON NURSERY=UNIFORM

| VARIETY  | STD | TEST<br>WT<br>#/BU | 1000<br>K.WT<br>G. | SIZING<br>LG SM<br>% % | WHT<br>PRO<br>14% | HARD<br>NESS | SEMO<br>EXTR<br>% | DUST<br>COLOR | MIXO | SCORE<br>*** | DEFICIENCIES<br>TW KW SM WP SX |
|----------|-----|--------------------|--------------------|------------------------|-------------------|--------------|-------------------|---------------|------|--------------|--------------------------------|
| MINIMUM  |     | 61.8               | 41.8               | 56                     | 2                 | 13.9         | 117               | 6.3           | 2    | 4            |                                |
| STOA     |     | 54.2               | 29.5               | 29                     | 3                 | 14.0         | 77                | 5.6           | 7    | 3            |                                |
| WARD     | S   | 58.5               | 38.6               | 48                     | 2                 | 14.1         | 107               | 6.8           | 2    | 4            | MJ                             |
| RUGBY    |     | 59.8               | 37.5               | 49                     | 2                 | 13.8         | 117               | 6.9           | 2    | 4            |                                |
| VIC      | S   | 58.7               | 40.3               | 47                     | 1                 | 14.0         | 109               | 7.0           | 5    | 4            |                                |
| LLOYD    | S   | 50.6               | 31.1               | 9                      | 8                 | 14.9         | 99                | 48.7          | 5    | 1            | MJ MJ                          |
| MONROE   |     | 55.5               | 36.2               | 32                     | 4                 | 14.3         | 108               | 52.3          | 4    | 4            |                                |
| RENVILLE |     | 58.7               | 34.2               | 9                      | 5                 | 14.0         | 116               | 56.7          | 4    | 4            | MI                             |
| MEDORA   | S   | 57.4               | 36.2               | 48                     | 2                 | 14.8         | 113               | 55.1          | 4    | 4            |                                |
| SCEPTRE  |     | 58.0               | 35.1               | 43                     | 3                 | 13.2         | 103               | 56.4          | 4    | 4            |                                |
| D87122   |     | 56.1               | 34.8               | 38                     | 3                 | 14.5         | 113               | 53.5          | 4    | 4            |                                |
| D87130   |     | 59.5               | 42.7               | 67                     | 1                 | 14.1         | 109               | 52.9          | 4    | 4            |                                |
| D87240   |     | 52.1               | 33.3               | 36                     | 3                 | 14.9         | 108               | 51.0          | 6    | 3            | MJ MI                          |
| D87436   |     | 54.5               | 28.7               | 14                     | 7                 | 13.9         | 104               | 50.3          | 4    | 2            | MJ                             |
| D87450   |     | 51.8               | 29.2               | 8                      | 7                 | 13.8         | 101               | 51.3          | 6    | 2            | MI MJ                          |
| D88273   |     | 53.3               | 28.4               | 9                      | 6                 | 15.4         | 113               | 51.3          | 8    | 3            | MI MJ                          |
| D88289   |     | 53.6               | 29.2               | 11                     | 5                 | 15.1         | 119               | 49.0          | 8    | 1            | MJ                             |
| D88303   |     | 56.6               | 34.8               | 31                     | 3                 | 14.0         | 106               | 53.2          | 5    | 4            |                                |
| D88450   |     | 55.0               | 28.2               | 13                     | 6                 | 14.1         | 105               | 46.8          | 5    | 1            | MJ                             |
| D88793   |     | 56.1               | 34.5               | 37                     | 3                 | 14.7         | 111               | 52.6          | 5    | 4            |                                |
| D89008   |     | 56.1               | 31.4               | 11                     | 6                 | 14.0         | 115               | 51.3          | 5    | 3            | MJ                             |
| D89111   |     | 57.7               | 36.4               | 45                     | 2                 | 14.2         | 105               | 51.3          | 5    | 4            |                                |
| D89135   |     | 57.4               | 35.5               | 41                     | 2                 | 14.8         | 99                | 56.7          | 6    | 4            |                                |
| D89172   |     | 56.1               | 32.4               | 33                     | 3                 | 14.0         | 111               | 51.3          | 5    | 4            | MI                             |
| D89235   |     | 58.7               | 37.2               | 41                     | 2                 | 13.3         | 102               | 53.8          | 4    | 4            |                                |
| D89263   |     | 57.7               | 32.8               | 25                     | 4                 | 13.9         | 103               | 50.3          | 4    | 3            | MI                             |
| D89331   |     | 59.0               | 41.3               | 45                     | 1                 | 13.5         | 111               | 54.1          | 4    | 4            |                                |
| D8460    |     | 56.1               | 34.5               | 33                     | 3                 | 14.1         | 103               | 53.5          | 4    | 4            |                                |
| D89424   |     | 54.0               | 34.0               | 17                     | 5                 | 13.9         | 105               | 52.2          | 4    | 4            | MI MI                          |
| D89538   |     | 49.9               | 27.3               | 19                     | 6                 | 14.9         | 96                | 45.5          | 4    | 1            | MJ MJ                          |
| D89-346  |     | 57.2               | 38.3               | 41                     | 2                 | 13.2         | 103               | 52.9          | 4    | 4            |                                |
| D89476   |     | 57.0               | 36.6               | 43                     | 3                 | 14.6         | 104               | 51.0          | 4    | 4            |                                |

DEFICIENCIES TW KW SM WP SX  
AVG OF STANDARDS 56.3 36.6 3 14.5 53.4  
MINOR FAULTING VALUES 54.1 34.5 8 12.5 50.4  
MAJOR FAULTING VALUES 53.2 31.4 13 11.5 49.4

\*\*\*EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

TABLE 7

QUALITY DATA OF DURUM SAMPLES 1993 CROP  
STATE=NORTH DAKOTA STATION=CARRINGTON NURSERY=UNIFORM

| VARIETY  | STD | TEST<br>WT<br>#/BU | 1000<br>K.WT<br>G. | SIZING<br>LG SM<br>% % | WHT<br>PRO<br>14% | HARD<br>NESS | SEMO<br>EXTR<br>% | DUST<br>COLOR | MIXO | SCORE<br>*** | DEFICIENCIES<br>TW KW SM WP SX |
|----------|-----|--------------------|--------------------|------------------------|-------------------|--------------|-------------------|---------------|------|--------------|--------------------------------|
| MINDUM   |     | 51.9               | 22.3               | 6 15                   | 15.4              | 103          | 49.8              | 6.6           | 4    | 4            |                                |
| STOA     |     | 50.8               | 20.7               | 13 9                   | 15.2              | 69           | 56.5              | 5.7           | 8    | 4            | MI                             |
| WARD     | S   | 55.8               | 29.7               | 14 7                   | 14.6              | 117          | 54.2              | 7.1           | 3    | 4            |                                |
| RUGBY    |     | 55.7               | 27.6               | 9 7                    | 14.0              | 106          | 53.7              | 7.1           | 2    | 4            |                                |
| VIC      | S   | 53.2               | 24.2               | 4 11                   | 15.5              | 105          | 52.2              | 7.3           | 5    | 4            |                                |
| LLOYD    | S   | 41.1               | 18.2               | 2 32                   | 18.3              | 104          | 41.1              | 6.8           | 5    | 1            | MJ MJ MJ MJ                    |
| MONROE   |     | 50.0               | 27.0               | 6 9                    | 14.6              | 103          | 51.8              | 7.0           | 5    | 4            |                                |
| RENVILLE |     | 52.7               | 22.0               | 2 21                   | 16.1              | 113          | 53.8              | 7.0           | 6    | 4            |                                |
| MEDORA   | S   | 49.4               | 21.7               | 2 15                   | 17.1              | 108          | 47.7              | 7.2           | 6    | 4            |                                |
| SCEPTRE  |     | 51.4               | 24.0               | 8 11                   | 15.7              | 101          | 49.4              | 6.9           | 6    | 4            |                                |
| D87122   |     | 52.1               | 23.3               | 5 10                   | 15.4              | 106          | 52.9              | 6.9           | 6    | 4            |                                |
| D87130   |     | 55.5               | 30.0               | 17 5                   | 14.0              | 103          | 55.0              | 7.0           | 5    | 4            |                                |
| D87240   |     | 48.8               | 25.3               | 8 8                    | 16.2              | 104          | 50.2              | 7.2           | 8    | 4            |                                |
| D87436   |     | 49.0               | 20.6               | 2 23                   | 16.0              | 108          | 47.3              | 7.1           | 8    | 4            | MI MI                          |
| D87450   |     | 46.3               | 21.3               | 1 27                   | 15.7              | 104          | 47.6              | 6.9           | 7    | 2            | MJ MI MJ                       |
| D88273   |     | 50.7               | 23.3               | 2 13                   | 16.4              | 106          | 50.8              | 7.1           | 8    | 4            |                                |
| D88289   |     | 48.9               | 22.7               | 2 15                   | 16.1              | 110          | 49.1              | 7.2           | 8    | 4            |                                |
| D88303   |     | 50.8               | 24.6               | 4 16                   | 14.6              | 106          | 50.5              | 7.0           | 6    | 4            |                                |
| D88450   |     | 50.0               | 21.7               | 3 17                   | 15.1              | 94           | 45.6              | 6.7           | 6    | 3            | MI                             |
| D88793   |     | 50.6               | 23.1               | 6 10                   | 17.1              | 108          | 46.6              | 7.1           | 7    | 4            |                                |
| D89008   |     | 52.7               | 23.3               | 1 19                   | 14.9              | 106          | 53.1              | 7.3           | 5    | 4            |                                |
| D89111   |     | 53.4               | 27.2               | 19 5                   | 15.4              | 103          | 51.7              | 7.4           | 4    | 4            |                                |
| D89135   |     | 52.5               | 26.0               | 5 10                   | 15.6              | 109          | 52.5              | 7.3           | 7    | 4            |                                |
| D89172   |     | 50.8               | 23.4               | 9 10                   | 14.9              | 109          | 51.1              | 7.3           | 7    | 4            |                                |
| D89235   |     | 54.6               | 23.5               | 5 10                   | 14.9              | 105          | 51.7              | 7.4           | 6    | 4            |                                |
| D89263   |     | 52.9               | 23.3               | 2 15                   | 15.7              | 107          | 49.8              | 7.3           | 8    | 4            |                                |
| D89331   |     | 54.5               | 27.7               | 7 9                    | 14.5              | 117          | 52.7              | 7.2           | 5    | 4            |                                |
| D8460    |     | 53.3               | 23.5               | 4 11                   | 15.3              | 108          | 52.5              | 7.4           | 5    | 4            |                                |
| D89424   |     | 46.3               | 20.4               | 1 29                   | 16.3              | 99           | 45.1              | 6.9           | 5    | 1            | MJ MJ MJ                       |
| D89538   |     | 45.7               | 21.3               | 7 11                   | 15.8              | 98           | 43.9              | 6.8           | 6    | 1            | MJ MJ                          |
| D89-346  |     | 49.4               | 22.2               | 3 15                   | 16.4              | 102          | 47.2              | 6.9           | 7    | 4            |                                |
| D89476   |     | 51.6               | 24.3               | 4 9                    | 16.4              | 107          | 48.8              | 6.9           | 7    | 4            |                                |

DEFICIENCIES TW KW SM WP SX  
AVG OF STANDARDS 49.9 23.5 16 16.4 48.8  
MINOR FAULTING VALUES 47.7 21.3 21 12.5 45.8  
MAJOR FAULTING VALUES 46.8 18.3 26 11.5 44.8

\*\*\*EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE



TABLE 8

QUALITY DATA OF DURUM SAMPLES 1993 CROP  
STATE=NORTH DAKOTA STATION=WILLISTON NURSERY=UNIFORM

| VARIETY  | STD | TEST<br>WT<br>#/BU | 1000<br>K.WT<br>G. | SIZING<br>LG SM<br>% | WHT<br>PRO<br>14% | HARD<br>NESS | SEMO<br>EXTR<br>% | DUST<br>COLOR | MIXO | SCORE<br>*** | DEFICIENCIES<br>TW KW SM WP SX |
|----------|-----|--------------------|--------------------|----------------------|-------------------|--------------|-------------------|---------------|------|--------------|--------------------------------|
| MINDUM   |     | 63.2               | 44.6               | 72                   | 1                 | 12.6         | 120               | 6.3           | 1    | 4            |                                |
| STOA     |     | 59.1               | 34.1               | 54                   | 1                 | 13.9         | 81                | 5.6           | 5    | 3            |                                |
| WARD     | S   | 61.6               | 43.9               | 71                   | 1                 | 13.6         | 127               | 6.8           | 1    | 4            | MJ                             |
| RUGBY    |     | 62.0               | 42.2               | 68                   | 1                 | 13.7         | 124               | 6.8           | 1    | 4            |                                |
| VIC      | S   | 61.3               | 44.1               | 73                   | 1                 | 13.5         | 122               | 6.9           | 2    | 4            |                                |
| LLOYD    | S   | 57.6               | 40.3               | 53                   | 3                 | 13.3         | 120               | 7.0           | 3    | 4            | MI                             |
| MONROE   |     | 59.7               | 43.7               | 70                   | 2                 | 13.0         | 114               | 6.8           | 2    | 4            |                                |
| RENVILLE |     | 61.8               | 41.7               | 57                   | 1                 | 13.5         | 125               | 6.7           | 2    | 4            |                                |
| MEDORA   | S   | 60.7               | 41.2               | 72                   | 1                 | 13.5         | 119               | 6.8           | 2    | 4            |                                |
| SCEPTRE  |     | 59.8               | 41.2               | 63                   | 1                 | 13.1         | 119               | 6.7           | 5    | 4            |                                |
| D87122   |     | 60.6               | 40.8               | 72                   | 1                 | 13.7         | 119               | 6.9           | 5    | 3            | MI                             |
| D87130   |     | 61.4               | 45.5               | 81                   | 1                 | 13.7         | 122               | 6.7           | 4    | 4            |                                |
| D87240   |     | 59.4               | 45.0               | 54                   | 1                 | 13.2         | 117               | 7.1           | 4    | 4            |                                |
| D87436   |     | 60.5               | 43.7               | 71                   | 1                 | 13.4         | 116               | 6.9           | 4    | 4            |                                |
| D87450   |     | 57.0               | 36.8               | 43                   | 3                 | 12.7         | 112               | 7.1           | 4    | 2            | MJ                             |
| D88273   |     | 60.9               | 40.0               | 57                   | 1                 | 13.5         | 120               | 6.9           | 4    | 4            | MI                             |
| D88289   |     | 60.1               | 35.8               | 48                   | 3                 | 13.5         | 117               | 7.1           | 4    | 3            | MJ                             |
| D88303   |     | 60.5               | 42.6               | 63                   | 1                 | 12.4         | 122               | 6.8           | 4    | 3            | MI                             |
| D88450   |     | 59.0               | 37.6               | 57                   | 5                 | 13.2         | 110               | 6.7           | 4    | 4            | MI                             |
| D88793   |     | 60.6               | 42.0               | 69                   | 1                 | 13.8         | 123               | 7.0           | 4    | 4            |                                |
| D89008   |     | 60.4               | 40.0               | 47                   | 3                 | 12.8         | 118               | 7.0           | 4    | 4            | MI                             |
| D89111   |     | 60.6               | 42.7               | 78                   | 1                 | 13.1         | 114               | 7.2           | 4    | 3            |                                |
| D89135   |     | 61.4               | 42.4               | 70                   | 1                 | 13.6         | 117               | 7.2           | 5    | 4            |                                |
| D89172   |     | 60.9               | 39.1               | 65                   | 1                 | 12.5         | 114               | 7.2           | 5    | 3            | MI                             |
| D89235   |     | 61.3               | 40.0               | 66                   | 1                 | 12.4         | 117               | 7.1           | 3    | 3            | MI                             |
| D89263   |     | 60.3               | 40.5               | 54                   | 2                 | 13.5         | 109               | 7.0           | 4    | 2            | MJ                             |
| D89331   |     | 61.6               | 46.9               | 71                   | 2                 | 12.9         | 121               | 7.0           | 3    | 4            |                                |
| D8460    |     | 60.6               | 39.2               | 61                   | 1                 | 13.1         | 115               | 7.0           | 3    | 4            | MI                             |
| D89424   |     | 57.9               | 37.5               | 42                   | 4                 | 12.6         | 109               | 6.8           | 3    | 4            | MI                             |
| D89538   |     | 57.2               | 38.3               | 62                   | 1                 | 13.1         | 105               | 6.6           | 5    | 4            | MI                             |
| D89-346  |     | 61.3               | 44.4               | 73                   | 1                 | 12.0         | 100               | 6.9           | 3    | 3            | MI                             |
| D89476   |     | 60.3               | 42.6               | 71                   | 1                 | 13.6         | 117               | 6.8           | 5    | 4            |                                |

## DEFICIENCIES

TW KW SM WP SX

AVG OF STANDARDS 60.3 42.4 2 13.5 52.6

MINOR FAULTING VALUES 58.1 40.3 7 12.5 49.6

MAJOR FAULTING VALUES 57.2 37.3 12 11.5 48.6

\*\*\*EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

QUALITY DATA OF DURUM SAMPLES 1993 CROP  
STATE=NORTH DAKOTA STATION=LANGDON NURSERY=UNIFORM

TABLE 9

| VARIETY  | STD | TEST<br>WT<br>#/BU | 1000<br>K.WT<br>G. | SIZING<br>LG SM<br>% % | WHT<br>PRO<br>14% | HARD<br>NESS | SEMO<br>EXTR<br>% | DUST<br>COLOR | MIXO | SCORE<br>*** | DEFICIENCIES |    |    |       |
|----------|-----|--------------------|--------------------|------------------------|-------------------|--------------|-------------------|---------------|------|--------------|--------------|----|----|-------|
|          |     |                    |                    |                        |                   |              |                   |               |      |              | TW           | KW | SM | WP SX |
| MINDUM   |     | 49.7               | 23.0               | 7 11                   | 15.4              | 91           | 43.9              | 6.2           | 3    | 4            |              | MI |    |       |
| STOA     |     | 47.0               | 21.1               | 8 11                   | 16.2              | 70           | 44.5              | 5.5           | 8    | 4            | MI           | MI |    |       |
| WARD     | S   | 53.6               | 35.8               | 19 5                   | 14.8              | 103          | 47.1              | 6.7           | 2    | 4            |              |    |    |       |
| RUGBY    |     | 53.4               | 25.6               | 14 7                   | 14.2              | 100          | 47.7              | 6.7           | 2    | 4            |              |    |    |       |
| VIC      | S   | 50.3               | 25.2               | 9 9                    | 14.9              | 104          | 50.3              | 6.8           | 5    | 4            |              |    |    |       |
| LLOYD    | S   | 44.8               | 17.8               | 1 32                   | 17.2              | 99           | 39.7              | 6.7           | 8    | 1            | MJ           | MJ | MJ |       |
| MONROE   |     | 50.8               | 29.7               | 24 4                   | 14.2              | 97           | 53.2              | 6.6           | 4    | 4            |              |    |    |       |
| RENVILLE |     | 49.9               | 22.5               | 2 18                   | 15.2              | 100          | 48.1              | 6.6           | 7    | 4            | MI           |    |    |       |
| MEDORA   | S   | 49.5               | 22.9               | 6 10                   | 15.8              | 104          | 45.5              | 6.8           | 7    | 4            | MI           |    |    |       |
| SCEPTRE  |     | 49.9               | 25.3               | 17 9                   | 15.3              | 103          | 49.4              | 6.4           | 8    | 4            |              |    |    |       |
| D87122   |     | 50.3               | 23.8               | 13 7                   | 15.5              | 94           | 50.3              | 6.6           | 8    | 4            |              |    |    |       |
| D87130   |     | 52.4               | 27.2               | 21 5                   | 14.7              | 101          | 50.0              | 6.5           | 6    | 4            |              |    |    |       |
| D87240   |     | 56.0               | 22.8               | 14 7                   | 16.0              | 97           | 43.6              | 6.7           | 8    | 4            | MI           | MJ | MJ |       |
| D87436   |     | 45.1               | 18.3               | 1 25                   | 15.6              | 97           | 42.3              | 6.8           | 7    | 1            | MJ           | MJ | MI |       |
| D87450   |     | 44.8               | 20.3               | 1 23                   | 14.6              | 88           | 41.1              | 6.6           | 5    | 1            | MJ           | MJ | MI |       |
| D88273   |     | 51.2               | 22.1               | 1 11                   | 16.4              | 95           | 41.9              | 6.7           | 8    | 3            | MI           |    |    |       |
| D88289   |     | 48.2               | 21.0               | 3 14                   | 15.5              | 93           | 43.9              | 6.8           | 8    | 4            |              |    |    |       |
| D88303   |     | 47.2               | 22.7               | 5 15                   | 15.3              | 99           | 43.6              | 6.6           | 6    | 4            | MI           | MI |    |       |
| D88450   |     | 45.4               | 19.3               | 5 15                   | 15.6              | 82           | 40.6              | 6.5           | 6    | 1            | MI           | MJ |    |       |
| D88793   |     | 49.2               | 25.3               | 13 8                   | 16.1              | 108          | 44.3              | 6.7           | 6    | 4            |              |    |    |       |
| D89008   |     | 48.7               | 22.2               | 3 19                   | 14.8              | 91           | 52.2              | 6.7           | 6    | 4            | MI           |    |    |       |
| D89111   |     | 48.6               | 23.1               | 19 5                   | 16.1              | 92           | 46.8              | 6.9           | 5    | 4            | MI           |    |    |       |
| D89135   |     | 48.8               | 22.0               | 5 12                   | 15.8              | 95           | 49.4              | 6.9           | 7    | 4            | MI           |    |    |       |
| D89172   |     | 49.9               | 21.9               | 14 8                   | 15.3              | 97           | 49.0              | 6.8           | 6    | 4            | MI           |    |    |       |
| D89235   |     | 49.7               | 22.8               | 7 10                   | 15.0              | 99           | 48.4              | 6.8           | 6    | 4            | MI           |    |    |       |
| D89263   |     | 50.7               | 22.0               | 2 17                   | 15.1              | 95           | 50.0              | 6.7           | 7    | 4            | MI           |    |    |       |
| D89331   |     | 49.4               | 23.9               | 7 11                   | 15.7              | 96           | 48.4              | 6.7           | 8    | 4            |              |    |    |       |
| D8460    |     | 53.0               | 25.7               | 7 7                    | 14.5              | 98           | 54.1              | 6.8           | 4    | 4            |              |    |    |       |
| D89424   |     | 44.0               | 18.5               | 1 32                   | 15.7              | 88           | 41.0              | 6.5           | 8    | 1            | MJ           | MJ | MJ |       |
| D89538   |     | 42.3               | 18.5               | 6 17                   | 15.7              | 84           | 40.1              | 6.3           | 5    | 1            | MJ           | MJ |    |       |
| D89-346  |     | 47.9               | 22.2               | 5 15                   | 15.8              | 98           | 46.5              | 6.6           | 7    | 4            | MI           |    |    |       |
| D89476   |     | 50.2               | 24.5               | 12 9                   | 16.1              | 95           | 47.8              | 6.5           | 7    | 4            |              |    |    |       |

DEFICIENCIES TW KW SM WP SX  
AVG OF STANDARDS 49.6 25.4 14 15.7 45.7  
MINOR FAULTING VALUES 47.3 23.3 19 12.5 42.7  
MAJOR FAULTING VALUES 46.5 20.3 24 11.5 41.7

\*\*\*EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

TABLE 10

QUALITY DATA OF DURUM SAMPLES 1993 CROP  
STATE=SASK. STATION=SWIFT CURRENT NURSERY=UNIFORM

| VARIETY  | STD | TEST<br>WT<br>#/BU | 1000<br>K.WT<br>G. | SIZING<br>LG SM<br>% % | WHT<br>PRO<br>14% | HARD<br>NESS | SEMO<br>EXTR<br>% | DUST<br>COLOR | MIXO | SCORE<br>*** | DEFICIENCIES<br>TW KW SM WP SX |
|----------|-----|--------------------|--------------------|------------------------|-------------------|--------------|-------------------|---------------|------|--------------|--------------------------------|
| MINDUM   |     | 63.7               | 46.5               | 75                     | 0                 | 8.5          | 88                | 6.1           | 0    | 2            | MJ                             |
| STOA     |     | 60.9               | 35.6               | 58                     | 1                 | 9.6          | 61                | 5.6           | 3    | 1            | MJ                             |
| WARD     | S   | 62.2               | 47.1               | 77                     | 1                 | 9.9          | 108               | 6.5           | 0    | 2            | MJ                             |
| RUGBY    |     | 61.9               | 45.2               | 71                     | 1                 | 9.8          | 100               | 6.6           | 0    | 2            | MI                             |
| VIC      | S   | 62.3               | 49.8               | 79                     | 0                 | 9.3          | 93                | 6.7           | 1    | 2            | MJ                             |
| LLOYD    | S   | 61.0               | 48.8               | 76                     | 0                 | 8.4          | 89                | 6.7           | 1    | 2            | MJ                             |
| MONROE   |     | 61.4               | 50.3               | 78                     | 0                 | 9.0          | 90                | 6.7           | 1    | 2            | MJ                             |
| RENVILLE |     | 61.0               | 42.2               | 65                     | 1                 | 8.5          | 80                | 6.4           | 1    | 1            | MJ                             |
| MEDORA   | S   | 62.4               | 46.9               | 81                     | 0                 | 9.9          | 111               | 6.8           | 1    | 2            | MJ                             |
| SCEPTRE  |     | 59.5               | 42.9               | 73                     | 1                 | 8.9          | 88                | 6.5           | 1    | 1            | MI MJ                          |
| D87122   |     | 62.0               | 48.3               | 85                     | 0                 | 9.5          | 94                | 6.7           | 1    | 2            | MJ                             |
| D87130   |     | 61.8               | 48.8               | 87                     | 0                 | 8.8          | 88                | 6.5           | 0    | 2            | MJ                             |
| D87240   |     | 59.8               | 48.1               | 78                     | 0                 | 8.9          | 85                | 6.7           | 0    | 2            | MJ                             |
| D87436   |     | 62.7               | 47.6               | 81                     | 0                 | 8.7          | 99                | 6.7           | 0    | 2            | MJ                             |
| D87450   |     | 59.5               | 45.7               | 66                     | 1                 | 8.3          | 78                | 6.8           | 0    | 2            | MI MJ                          |
| D88273   |     | 62.2               | 45.5               | 71                     | 1                 | 9.7          | 105               | 6.8           | 1    | 2            | MI MJ                          |
| D88289   |     | 63.0               | 42.4               | 71                     | 1                 | 9.8          | 105               | 6.9           | 2    | 1            | MJ                             |
| D88303   |     | 62.1               | 50.8               | 82                     | 0                 | 9.1          | 100               | 6.7           | 1    | 2            | MJ                             |
| D88450   |     | 61.4               | 44.6               | 75                     | 1                 | 8.1          | 74                | 6.4           | 0    | 2            | MI MJ                          |
| D88793   |     | 62.0               | 48.8               | 79                     | 1                 | 9.6          | 103               | 7.0           | 1    | 2            | MJ                             |
| D89008   |     | 60.5               | 45.0               | 69                     | 0                 | 8.5          | 80                | 6.7           | 0    | 2            | MI MJ                          |
| D89111   |     | 61.8               | 46.7               | 85                     | 0                 | 8.6          | 85                | 6.9           | 0    | 2            | MI MJ                          |
| D89135   |     | 62.9               | 48.1               | 83                     | 0                 | 9.4          | 94                | 7.0           | 1    | 2            | MJ                             |
| D89172   |     | 61.8               | 45.0               | 77                     | 0                 | 8.8          | 89                | 6.8           | 1    | 2            | MI MJ                          |
| D89235   |     | 60.9               | 46.7               | 79                     | 0                 | 8.8          | 79                | 6.7           | 0    | 2            | MJ                             |
| D89263   |     | 63.1               | 46.5               | 72                     | 0                 | 9.5          | 91                | 6.7           | 2    | 2            | MJ                             |
| D89331   |     | 61.8               | 52.4               | 85                     | 0                 | 8.1          | 82                | 6.5           | 1    | 2            | MJ                             |
| D8460    |     | 60.5               | 42.4               | 70                     | 1                 | 9.1          | 88                | 6.8           | 1    | 1            | MJ                             |
| D89424   |     | 60.7               | 47.1               | 80                     | 1                 | 7.8          | 66                | 6.4           | 0    | 2            | MJ                             |
| D89538   |     | 60.1               | 51.5               | 88                     | 0                 | 8.8          | 82                | 6.4           | 1    | 2            | MJ                             |
| D89-346  |     | 63.4               | 53.5               | 89                     | 0                 | 8.8          | 93                | 6.6           | 1    | 2            | MJ                             |
| D89476   |     | 62.8               | 47.6               | 79                     | 0                 | 9.2          | 96                | 6.7           | 1    | 2            | MJ                             |

## DEFICIENCIES

AVG OF STANDARDS 62.0 48.2 0 9.4 58.9  
MINOR FAULTING VALUES 59.8 46.0 5 12.5 55.9  
MAJOR FAULTING VALUES 58.9 43.0 10 11.5 54.9

\*\*\*EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE



Table 11

|                  | WARD n=9 |      |      |       |       | VIC n=9 |       |      |       |       |
|------------------|----------|------|------|-------|-------|---------|-------|------|-------|-------|
|                  | MEAN     | SD   | MIN  | MAX.  | RANGE | MEAN    | SD    | MIN  | MAX.  | RANGE |
| Test Wt.         | 58.2     | 3.50 | 53.6 | 62.7  | 9.1   | 56.8    | 4.84  | 49.8 | 62.3  | 12.5  |
| 1000 Ker Wt      | 36.8     | 7.20 | 25.5 | 47.1  | 21.6  | 35.6    | 10.65 | 22.6 | 49.8  | 27.2  |
| Wht.Protein 14%  | 13.6     | 1.46 | 9.9  | 14.8  | 4.9   | 13.6    | 1.97  | 9.3  | 16.1  | 6.7   |
| Hardness         | 111.2    | 8.35 | 99.0 | 127.0 | 28.0  | 105.9   | 8.16  | 93.0 | 122.0 | 29.0  |
| Semo. Extraction | 53.6     | 3.33 | 47.1 | 58.2  | 11.1  | 53.8    | 4.04  | 47.4 | 61.1  | 13.7  |
| Semo. Color      | 6.7      | 0.18 | 6.5  | 7.1   | 0.6   | 6.9     | 0.22  | 6.6  | 7.3   | 0.7   |
| Mix Pattern      | 1.8      | 0.97 | 0.0  | 3.0   | 3.0   | 4.0     | 2.06  | 1.0  | 7.0   | 6.0   |

|                  | STOA n=9 |      |      |      |       | SCEPTRE n=9 |      |      |       |       |
|------------------|----------|------|------|------|-------|-------------|------|------|-------|-------|
|                  | MEAN     | SD   | MIN  | MAX. | RANGE | MEAN        | SD   | MIN  | MAX.  | RANGE |
| Test Wt.         | 54.2     | 4.95 | 47.0 | 60.9 | 13.9  | 54.5        | 4.13 | 49.7 | 59.8  | 10.1  |
| 1000 Ker Wt      | 27.7     | 6.83 | 19.1 | 35.6 | 16.5  | 32.0        | 7.57 | 22.1 | 42.9  | 20.8  |
| Wht.Protein 14%  | 13.8     | 2.01 | 9.6  | 16.2 | 6.6   | 13.3        | 2.13 | 8.9  | 15.7  | 6.8   |
| Hardness         | 73.8     | 7.76 | 61.0 | 88.0 | 27.0  | 101.7       | 8.50 | 88.0 | 119.0 | 31.0  |
| Semo. Extraction | 55.1     | 5.61 | 44.5 | 62.6 | 18.1  | 52.4        | 4.60 | 47.4 | 61.5  | 14.1  |
| Semo. Color      | 5.6      | 0.08 | 5.5  | 5.7  | 0.2   | 6.6         | 0.24 | 6.1  | 6.9   | 0.8   |
| Mix Pattern      | 6.4      | 1.94 | 3.0  | 8.0  | 5.0   | 4.6         | 2.30 | 1.0  | 8.0   | 7.0   |

|                  | RUGBY n=9 |      |       |       |       | RENVILLE n=9 |       |      |       |       |
|------------------|-----------|------|-------|-------|-------|--------------|-------|------|-------|-------|
|                  | MEAN      | SD   | MIN   | MAX.  | RANGE | MEAN         | SD    | MIN  | MAX.  | RANGE |
| Test Wt.         | 58.4      | 3.33 | 53.4  | 62.3  | 8.9   | 56.3         | 4.41  | 49.9 | 61.8  | 11.9  |
| 1000 Ker Wt      | 34.6      | 7.08 | 25.6  | 45.2  | 19.6  | 31.4         | 8.44  | 21.0 | 42.2  | 21.2  |
| Wht.Protein 14%  | 13.1      | 1.41 | 9.8   | 14.2  | 4.4   | 13.5         | 2.37  | 8.5  | 16.2  | 7.7   |
| Hardness         | 109.0     | 8.38 | 100.0 | 124.0 | 24.0  | 106.6        | 12.78 | 80.0 | 125.0 | 45.0  |
| Semo. Extraction | 53.7      | 3.13 | 47.7  | 58.6  | 10.9  | 54.0         | 4.37  | 48.1 | 63.0  | 14.9  |
| Semo. Color      | 6.8       | 0.18 | 6.6   | 7.1   | 0.5   | 6.7          | 0.21  | 6.4  | 7.0   | 0.6   |
| Mix Pattern      | 1.4       | 0.73 | 0.0   | 2.0   | 2.0   | 4.3          | 2.50  | 1.0  | 8.0   | 7.0   |

Table 12

| Table 12         | MONROE n=9 |      |      |       |       | MINDUM n=9 |       |      |       |       |
|------------------|------------|------|------|-------|-------|------------|-------|------|-------|-------|
|                  | MEAN       | SD   | MIN  | MAX.  | RANGE | MEAN       | SD    | MIN  | MAX.  | RANGE |
| Test Wt.         | 55.7       | 4.68 | 49.5 | 61.4  | 11.9  | 57.5       | 5.12  | 49.7 | 63.7  | 14.0  |
| 1000 Ker Wt      | 36.7       | 8.64 | 25.0 | 50.3  | 25.3  | 33.1       | 9.66  | 22.2 | 46.5  | 24.3  |
| Wht.Protein 14%  | 13.0       | 1.85 | 9.0  | 14.9  | 6.0   | 13.1       | 2.27  | 8.5  | 15.5  | 6.9   |
| Hardness         | 101.3      | 7.92 | 90.0 | 114.0 | 24.0  | 100.8      | 11.76 | 88.0 | 120.0 | 32.0  |
| Semo. Extraction | 54.3       | 3.46 | 49.7 | 61.0  | 11.4  | 52.9       | 5.53  | 43.9 | 63.0  | 19.1  |
| Semo. Color      | 6.8        | 0.14 | 6.6  | 7.0   | 0.4   | 6.3        | 0.22  | 5.9  | 6.6   | 0.7   |
| Mix Pattern      | 3.7        | 1.66 | 1.0  | 6.0   | 5.0   | 2.2        | 1.20  | 0.0  | 4.0   | 4.0   |

|                  | MEDORA n=9 |      |       |       |       | LLOYD n=9 |       |      |       |       |
|------------------|------------|------|-------|-------|-------|-----------|-------|------|-------|-------|
|                  | MEAN       | SD   | MIN   | MAX.  | RANGE | MEAN      | SD    | MIN  | MAX.  | RANGE |
| Test Wt.         | 55.6       | 4.97 | 49.4  | 62.4  | 13.0  | 51.0      | 6.80  | 41.1 | 61.0  | 19.9  |
| 1000 Ker Wt      | 32.8       | 9.20 | 21.7  | 46.9  | 25.2  | 30.7      | 11.88 | 17.5 | 48.8  | 31.3  |
| Wht.Protein 14%  | 14.1       | 2.25 | 9.9   | 17.1  | 7.2   | 14.3      | 3.30  | 8.4  | 18.3  | 9.9   |
| Hardness         | 110.1      | 4.48 | 104.0 | 119.0 | 15.0  | 103.1     | 9.94  | 89.0 | 120.0 | 31.0  |
| Semo. Extraction | 50.7       | 4.27 | 45.5  | 58.3  | 12.8  | 47.1      | 6.00  | 39.7 | 57.8  | 18.1  |
| Semo. Color      | 6.9        | 0.19 | 6.6   | 7.2   | 0.6   | 6.7       | 0.33  | 5.9  | 7.0   | 1.1   |
| Mix Pattern      | 4.3        | 2.50 | 1.0   | 8.0   | 7.0   | 4.8       | 2.73  | 1.0  | 8.0   | 7.0   |

|                  | D89538 n=9 |       |      |       |       | D89476 n=9 |      |      |       |       |
|------------------|------------|-------|------|-------|-------|------------|------|------|-------|-------|
|                  | MEAN       | SD    | MIN  | MAX.  | RANGE | MEAN       | SD   | MIN  | MAX.  | RANGE |
| Test Wt.         | 52.1       | 6.48  | 42.3 | 60.3  | 18.0  | 56.5       | 4.47 | 50.2 | 62.8  | 12.6  |
| 1000 Ker Wt      | 32.9       | 13.44 | 18.5 | 55.6  | 37.1  | 34.9       | 9.10 | 24.2 | 47.6  | 23.4  |
| Wht.Protein 14%  | 13.6       | 2.38  | 8.8  | 15.8  | 7.0   | 13.8       | 2.31 | 9.2  | 16.4  | 7.3   |
| Hardness         | 95.4       | 9.06  | 82.0 | 111.0 | 29.0  | 102.6      | 6.71 | 95.0 | 117.0 | 22.0  |
| Semo. Extraction | 47.9       | 5.17  | 40.1 | 58.0  | 17.8  | 50.9       | 2.69 | 47.8 | 57.0  | 9.2   |
| Semo. Color      | 6.5        | 0.17  | 6.3  | 6.8   | 0.5   | 6.7        | 0.16 | 6.4  | 6.9   | 0.5   |
| Mix Pattern      | 3.3        | 2.00  | 0.0  | 6.0   | 6.0   | 4.1        | 2.62 | 0.0  | 7.0   | 7.0   |

Table 13

| Table 13 | D89424 n=9 |       |      |       |       | D89331 n=9 |       |      |       |       |
|----------|------------|-------|------|-------|-------|------------|-------|------|-------|-------|
|          | MEAN       | SD    | MIN  | MAX.  | RANGE | MEAN       | SD    | MIN  | MAX.  | RANGE |
|          | 53.5       | 5.95  | 44.0 | 60.7  | 16.7  | 57.6       | 5.13  | 49.4 | 63.0  | 13.6  |
|          | 31.5       | 10.19 | 18.5 | 47.1  | 28.6  | 37.6       | 11.21 | 22.5 | 52.4  | 29.9  |
|          | 13.1       | 2.65  | 7.8  | 16.3  | 8.6   | 12.9       | 2.31  | 8.1  | 15.7  | 7.6   |
|          | 95.6       | 14.21 | 66.0 | 109.0 | 43.0  | 104.0      | 11.96 | 82.0 | 121.0 | 39.0  |
|          | 51.2       | 6.26  | 41.0 | 63.2  | 22.2  | 53.7       | 4.92  | 46.2 | 62.2  | 16.0  |
|          | 6.7        | 0.22  | 6.4  | 6.9   | 0.5   | 6.8        | 0.23  | 6.5  | 7.2   | 0.7   |
|          | 3.3        | 2.55  | 0.0  | 8.0   | 8.0   | 3.9        | 2.80  | 0.0  | 8.0   | 8.0   |
|          |            |       |      |       |       |            |       |      |       |       |
|          | D89263 n=9 |       |      |       |       | D89235 n=9 |       |      |       |       |
|          | MEAN       | SD    | MIN  | MAX.  | RANGE | MEAN       | SD    | MIN  | MAX.  | RANGE |
|          | 57.3       | 4.49  | 50.7 | 63.1  | 12.4  | 57.0       | 4.14  | 49.7 | 61.3  | 11.6  |
|          | 33.3       | 10.13 | 20.9 | 46.5  | 25.6  | 33.6       | 9.57  | 22.8 | 46.7  | 23.9  |
|          | 13.7       | 1.98  | 9.5  | 16.2  | 6.7   | 13.0       | 1.93  | 8.8  | 15.0  | 6.2   |
|          | 102.0      | 5.70  | 91.0 | 109.0 | 18.0  | 101.1      | 10.12 | 79.0 | 117.0 | 38.0  |
|          | 51.0       | 3.80  | 45.5 | 58.0  | 12.4  | 53.5       | 4.35  | 48.4 | 63.9  | 15.5  |
|          | 6.9        | 0.24  | 6.6  | 7.3   | 0.7   | 7.0        | 0.23  | 6.7  | 7.4   | 0.7   |
|          | 4.6        | 2.74  | 0.0  | 8.0   | 8.0   | 3.4        | 2.24  | 0.0  | 6.0   | 6.0   |
|          |            |       |      |       |       |            |       |      |       |       |
|          | D89172 n=9 |       |      |       |       | D89135 n=9 |       |      |       |       |
|          | MEAN       | SD    | MIN  | MAX.  | RANGE | MEAN       | SD    | MIN  | MAX.  | RANGE |
|          | 56.3       | 4.44  | 49.9 | 61.8  | 11.9  | 57.0       | 4.74  | 48.8 | 62.9  | 14.1  |
|          | 32.6       | 9.35  | 21.9 | 45.0  | 23.1  | 34.2       | 9.40  | 22.0 | 48.1  | 26.1  |
|          | 13.3       | 2.05  | 8.8  | 15.3  | 6.5   | 13.9       | 2.10  | 9.4  | 16.1  | 6.7   |
|          | 104.9      | 8.68  | 89.0 | 116.0 | 27.0  | 103.2      | 7.41  | 94.0 | 117.0 | 23.0  |
|          | 52.1       | 3.60  | 49.0 | 61.1  | 12.1  | 52.9       | 3.49  | 47.5 | 59.2  | 11.8  |
|          | 7.0        | 0.23  | 6.6  | 7.3   | 0.7   | 7.1        | 0.16  | 6.9  | 7.3   | 0.4   |
|          | 4.9        | 1.96  | 1.0  | 7.0   | 6.0   | 5.3        | 1.94  | 1.0  | 7.0   | 6.0   |
|          |            |       |      |       |       |            |       |      |       |       |



Table 14

| Table 14    | D891111 n=9 |       |       |       |            | D89008 n=9 |       |       |       |       |
|-------------|-------------|-------|-------|-------|------------|------------|-------|-------|-------|-------|
|             | MEAN        | SD    | MIN   | MAX.  | RANGE      | MEAN       | SD    | MIN   | MAX.  | RANGE |
|             | 56.5        | 4.82  | 48.6  | 61.8  | 13.2       | 56.0       | 4.18  | 48.7  | 60.5  | 11.8  |
|             | 35.3        | 9.91  | 23.1  | 48.1  | 25.0       | 31.9       | 8.86  | 21.7  | 45.0  | 23.3  |
|             | 13.7        | 2.27  | 8.6   | 16.1  | 7.5        | 13.2       | 2.16  | 8.5   | 15.8  | 7.3   |
|             | 103.4       | 10.19 | 85.0  | 114.0 | 29.0       | 102.3      | 11.70 | 80.0  | 118.0 | 38.0  |
|             | 50.7        | 3.85  | 46.5  | 59.2  | 12.7       | 53.7       | 3.99  | 47.4  | 62.7  | 15.2  |
|             | 7.1         | 0.22  | 6.8   | 7.4   | 0.6        | 6.9        | 0.22  | 6.7   | 7.3   | 0.6   |
|             | 4.3         | 2.00  | 0.0   | 7.0   | 7.0        | 4.4        | 2.01  | 0.0   | 7.0   | 7.0   |
|             |             |       |       |       |            |            |       |       |       |       |
| D89-346 n=9 |             |       |       |       | D88793 n=9 |            |       |       |       |       |
| MEAN        | SD          | MIN   | MAX.  | RANGE | MEAN       | SD         | MIN   | MAX.  | RANGE |       |
| 55.7        | 5.91        | 47.9  | 63.4  | 15.5  | 55.0       | 4.74       | 49.2  | 62.0  | 12.8  |       |
| 36.0        | 12.81       | 22.0  | 53.5  | 31.5  | 33.3       | 8.97       | 23.1  | 48.8  | 25.7  |       |
| 13.2        | 2.39        | 8.8   | 16.4  | 7.6   | 14.3       | 2.42       | 9.6   | 17.1  | 7.5   |       |
| 101.2       | 5.14        | 93.0  | 110.0 | 17.0  | 111.3      | 6.98       | 102.0 | 123.0 | 21.0  |       |
| 50.4        | 3.76        | 46.5  | 58.6  | 12.1  | 50.0       | 4.47       | 44.3  | 58.6  | 14.3  |       |
| 6.7         | 0.21        | 6.3   | 7.0   | 0.7   | 6.9        | 0.17       | 6.6   | 7.1   | 0.5   |       |
| 3.8         | 2.39        | 0.0   | 7.0   | 7.0   | 4.9        | 2.57       | 1.0   | 8.0   | 7.0   |       |
|             |             |       |       |       |            |            |       |       |       |       |
| D88450 n=9  |             |       |       |       | D88303 n=9 |            |       |       |       |       |
| MEAN        | SD          | MIN   | MAX.  | RANGE | MEAN       | SD         | MIN   | MAX.  | RANGE |       |
| 54.8        | 5.80        | 45.4  | 62.6  | 17.2  | 55.3       | 5.68       | 46.7  | 62.1  | 15.4  |       |
| 30.7        | 10.01       | 19.3  | 44.6  | 25.3  | 34.1       | 9.96       | 21.1  | 50.8  | 29.7  |       |
| 13.2        | 2.44        | 8.1   | 15.6  | 7.5   | 13.1       | 2.01       | 9.1   | 15.3  | 6.2   |       |
| 95.3        | 11.47       | 74.0  | 110.0 | 36.0  | 104.8      | 7.92       | 96.0  | 122.0 | 26.0  |       |
| 48.9        | 5.89        | 40.6  | 60.9  | 20.3  | 50.5       | 4.60       | 43.6  | 59.6  | 16.0  |       |
| 6.6         | 0.16        | 6.4   | 6.8   | 0.5   | 6.8        | 0.16       | 6.6   | 7.0   | 0.4   |       |
| 4.3         | 2.29        | 0.0   | 7.0   | 7.0   | 4.6        | 1.94       | 1.0   | 7.0   | 6.0   |       |

Table 15

| D88289 n=9       |       |      |      |       |       | D88273 n=9 |       |      |      |       |       |
|------------------|-------|------|------|-------|-------|------------|-------|------|------|-------|-------|
|                  | MEAN  | SD   | MIN  | MAX.  | RANGE |            | MEAN  | SD   | MIN  | MAX.  | RANGE |
| Test Wt.         | 56.0  | 5.37 | 48.2 | 63.0  | 14.8  |            | 56.1  | 4.86 | 50.5 | 62.2  | 11.7  |
| 1000 Ker Wt      | 31.5  | 8.41 | 21.0 | 44.6  | 23.6  |            | 32.4  | 9.64 | 22.1 | 45.7  | 23.6  |
| Wht. Protein 14% | 13.8  | 1.91 | 9.8  | 16.1  | 6.3   |            | 14.2  | 2.24 | 9.7  | 16.4  | 6.7   |
| Hardness         | 105.7 | 9.62 | 93.0 | 119.0 | 26.0  |            | 109.6 | 7.37 | 95.0 | 120.0 | 25.0  |
| Semo. Extraction | 50.1  | 3.71 | 43.9 | 57.1  | 13.2  |            | 50.1  | 4.71 | 41.9 | 58.0  | 16.0  |
| Semo. Color      | 7.0   | 0.17 | 6.8  | 7.3   | 0.5   |            | 6.9   | 0.16 | 6.7  | 7.1   | 0.4   |
| Mix Pattern      | 5.4   | 2.30 | 2.0  | 8.0   | 6.0   |            | 5.8   | 2.77 | 1.0  | 8.0   | 7.0   |

| D87450 n=9       |      |       |      |       |       | D87436 n=9 |       |       |      |       |       |
|------------------|------|-------|------|-------|-------|------------|-------|-------|------|-------|-------|
|                  | MEAN | SD    | MIN  | MAX.  | RANGE |            | MEAN  | SD    | MIN  | MAX.  | RANGE |
| Test Wt.         | 52.9 | 5.47  | 44.8 | 59.5  | 14.7  |            | 54.7  | 6.00  | 45.1 | 62.7  | 17.6  |
| 1000 Ker Wt      | 32.1 | 10.51 | 20.3 | 48.5  | 28.2  |            | 31.9  | 11.70 | 18.3 | 47.6  | 29.3  |
| Wht. Protein 14% | 12.7 | 2.28  | 8.3  | 15.7  | 7.4   |            | 13.4  | 2.32  | 8.7  | 16.0  | 7.3   |
| Hardness         | 96.7 | 12.85 | 78.0 | 117.0 | 39.0  |            | 105.0 | 6.04  | 97.0 | 116.0 | 19.0  |
| Semo. Extraction | 50.9 | 4.73  | 41.1 | 58.5  | 17.4  |            | 49.4  | 4.37  | 42.3 | 58.0  | 15.7  |
| Semo. Color      | 6.9  | 0.19  | 6.6  | 7.1   | 0.5   |            | 6.8   | 0.24  | 6.3  | 7.1   | 0.8   |
| Mix Pattern      | 4.2  | 2.22  | 0.0  | 7.0   | 7.0   |            | 4.3   | 2.50  | 0.0  | 8.0   | 8.0   |

| D87240 n=9       |       |       |      |       |       | D87130 n=9 |       |      |      |       |       |
|------------------|-------|-------|------|-------|-------|------------|-------|------|------|-------|-------|
|                  | MEAN  | SD    | MIN  | MAX.  | RANGE |            | MEAN  | SD   | MIN  | MAX.  | RANGE |
| Test Wt.         | 54.7  | 4.21  | 48.8 | 59.8  | 11.0  |            | 58.2  | 3.49 | 52.4 | 62.0  | 9.6   |
| 1000 Ker Wt      | 35.1  | 10.72 | 22.8 | 50.8  | 28.0  |            | 38.4  | 8.46 | 27.2 | 48.8  | 21.6  |
| Wht. Protein 14% | 13.8  | 2.40  | 8.9  | 16.2  | 7.3   |            | 13.1  | 1.86 | 8.8  | 14.9  | 6.1   |
| Hardness         | 103.6 | 9.30  | 85.0 | 117.0 | 32.0  |            | 105.2 | 8.97 | 88.0 | 122.0 | 34.0  |
| Semo. Extraction | 50.4  | 4.22  | 43.6 | 59.6  | 16.0  |            | 53.0  | 3.13 | 50.0 | 59.9  | 9.9   |
| Semo. Color      | 6.9   | 0.25  | 6.5  | 7.2   | 0.7   |            | 6.7   | 0.20 | 6.3  | 7.0   | 0.7   |
| Mix Pattern      | 5.1   | 2.76  | 0.0  | 8.0   | 8.0   |            | 3.7   | 1.80 | 0.0  | 6.0   | 6.0   |

Table 16

| Table 16         | D87122 n=9 |       |      |       |       | D8460 n=9 |      |      |       |       |
|------------------|------------|-------|------|-------|-------|-----------|------|------|-------|-------|
|                  | MEAN       | SD    | MIN  | MAX.  | RANGE | MEAN      | SD   | MIN  | MAX.  | RANGE |
|                  | 56.5       | 4.93  | 49.9 | 62.8  | 12.9  | 56.9      | 3.37 | 53.0 | 61.4  | 8.4   |
|                  | 34.4       | 10.16 | 22.0 | 48.3  | 26.3  | 32.8      | 7.52 | 23.5 | 42.4  | 18.9  |
|                  | 13.8       | 1.90  | 9.5  | 15.7  | 6.1   | 13.2      | 1.98 | 9.1  | 15.3  | 6.3   |
|                  | 104.8      | 9.09  | 94.0 | 119.0 | 25.0  | 103.7     | 7.70 | 88.0 | 115.0 | 27.0  |
|                  | 52.7       | 3.61  | 47.7 | 59.6  | 11.9  | 54.1      | 2.27 | 52.2 | 59.6  | 7.4   |
|                  | 6.8        | 0.18  | 6.4  | 7.0   | 0.6   | 7.0       | 0.26 | 6.6  | 7.4   | 0.8   |
|                  | 4.7        | 2.18  | 1.0  | 8.0   | 7.0   | 3.0       | 1.73 | 0.0  | 5.0   | 5.0   |
|                  | Test Wt.   |       |      |       |       |           |      |      |       |       |
| 1000 Ker Wt      |            |       |      |       |       |           |      |      |       |       |
| Wht.Protein 14%  |            |       |      |       |       |           |      |      |       |       |
| Hardness         |            |       |      |       |       |           |      |      |       |       |
| Semo. Extraction |            |       |      |       |       |           |      |      |       |       |
| Semo. Color      |            |       |      |       |       |           |      |      |       |       |
| Mix Pattern      |            |       |      |       |       |           |      |      |       |       |



QUALITY DATA OF DURUM SAMPLES 1993 CROP  
STATE=CALIFORNIA STATION=IMPERIAL VALLEY NURSERY=ADVANCED

TABLE 17

| -----VARIETY----- |                |        |      |     |      |      |       |      |      |      |      |      |       |       |   |
|-------------------|----------------|--------|------|-----|------|------|-------|------|------|------|------|------|-------|-------|---|
| TEST              | 1000           | SIZING | WHT  | WHT | WHT  | PRO  | HARD- | FALL | TOTL | SEMO | SPK  | SEMO | DUST  | MIXO  |   |
| WT                | K.WT           | LG     | SM   | ASH | PRO  | NESS | NESS  | NO   | EXTR | EXTR |      | %    | COLOR | SCORE |   |
| #/BU              | G.             | %      | %    | %   | %    | %    |       | SEC  | %    | %    |      | %    |       |       |   |
| S                 | YECORA ROJO    | 63.4   | 40.0 | 55  | 3    | 1.62 | 12.0  | 92   | 421  | 70.3 | 53.3 | .    | 0.52  | 5.70  | 5 |
|                   | MEXICALI 75    | 62.9   | 50.3 | 81  | 1    | 1.85 | 11.8  | 139  | 405  | 78.9 | 61.7 | .    | 0.77  | 7.10  | 5 |
|                   | ALDURA         | 64.5   | 45.2 | 58  | 1    | 1.76 | 11.6  | 143  | 450  | 80.3 | 58.3 | .    | 0.70  | 7.40  | 2 |
|                   | YAVAROS 79     | 66.6   | 58.5 | 88  | 1    | 1.64 | 10.6  | 135  | 425  | 77.8 | 61.6 | .    | 0.83  | 6.00  | 2 |
|                   | WESTBRED 881   | 62.8   | 51.5 | 78  | 1    | 1.83 | 12.4  | 131  | 500  | 77.3 | 60.3 | .    | 0.72  | 7.20  | 5 |
|                   | WESTBRED TURBO | 64.7   | 57.3 | 90  | 1    | 1.68 | 10.7  | 128  | 417  | 78.8 | 61.9 | .    | 0.65  | 6.90  | 2 |
|                   | NUDURA         | 64.8   | 51.5 | 80  | 1    | 1.80 | 11.7  | 147  | 494  | 80.6 | 62.2 | .    | 0.74  | 7.30  | 4 |
|                   | REVA           | 64.1   | 50.5 | 77  | 1    | 2.01 | 12.0  | 132  | 470  | 79.6 | 62.7 | .    | 0.80  | 7.20  | 4 |
|                   | DUREX          | 63.3   | 51.5 | 84  | 1    | 1.73 | 12.4  | 143  | 489  | 78.9 | 61.9 | .    | 0.70  | 7.20  | 4 |
|                   | FMC 5456       | 64.8   | 51.3 | 77  | 2    | 1.78 | 11.5  | 140  | 399  | 79.9 | 64.0 | .    | 0.72  | 7.00  | 2 |
|                   | UC 907         | 64.4   | 53.5 | 85  | 1    | 1.92 | 12.7  | 134  | 410  | 80.9 | 63.8 | .    | 0.83  | 7.10  | 3 |
|                   | UC 908         | 64.1   | 54.6 | 85  | 1    | 1.94 | 12.7  | 140  | 402  | 80.9 | 64.1 | .    | 0.85  | 7.00  | 3 |
|                   | UC 910         | 66.5   | 46.7 | 80  | 1    | 1.89 | 12.3  | 143  | 397  | 80.5 | 63.1 | .    | 0.80  | 7.40  | 2 |
|                   | WPB 8001       | 64.3   | 54.6 | 89  | 1    | 1.74 | 11.1  | 130  | 405  | 78.2 | 62.5 | .    | 0.73  | 7.20  | 3 |
|                   | WPB 8003       | 61.7   | 54.9 | 88  | 1    | 1.91 | 12.9  | 143  | 407  | 79.5 | 61.3 | .    | 0.85  | 7.00  | 5 |
|                   | FMC 5476       | 63.5   | 47.4 | 66  | 2    | 1.79 | 11.2  | 127  | 421  | 79.9 | 59.3 | .    | 0.79  | 7.50  | 4 |
|                   | FMC 8869       | 63.3   | 49.5 | 66  | 1    | 1.81 | 11.9  | 145  | 459  | 75.1 | 59.1 | .    | 0.67  | 7.30  | 4 |
|                   | ALDENTE        | 63.0   | 51.0 | 77  | 2    | 1.74 | 12.3  | 137  | 444  | 74.5 | 57.2 | .    | 0.65  | 7.20  | 4 |
|                   | WPB 8005       | 64.0   | 50.3 | 80  | 1    | 1.86 | 11.7  | 127  | 407  | 75.1 | 57.3 | .    | 0.66  | 6.60  | 4 |
|                   | WPB 8008       | 63.1   | 54.1 | 80  | 1    | 1.77 | 11.8  | 133  | 421  | 75.2 | 58.4 | .    | 0.66  | 7.50  | 6 |
|                   | KRONAS         | 63.5   | 54.6 | 85  | 1    | 1.85 | 11.9  | 133  | 489  | 75.0 | 57.4 | .    | 0.65  | 7.50  | 4 |
|                   | CONCORDE       | 64.9   | 44.8 | 67  | 2    | 1.72 | 11.9  | 145  | 439  | 76.9 | 58.4 | .    | 0.60  | 7.40  | 4 |
|                   | OCOTILLO       | 64.1   | 51.5 | 78  | 1    | 1.85 | 12.5  | 141  | 458  | 76.3 | 58.6 | .    | 0.62  | 7.10  | 5 |
|                   | WPB 8009       | 63.9   | 43.1 | 60  | 2    | 1.71 | 11.3  | 127  | 458  | 77.0 | 59.5 | .    | 0.65  | 7.60  | 6 |
|                   | FMC 7172A      | 64.0   | 43.3 | 59  | 2    | 1.83 | 12.3  | 138  | 465  | 79.6 | 60.9 | .    | 0.69  | 6.90  | 4 |
|                   | FMC 5237-1     | 63.4   | 50.0 | 76  | 1    | 1.82 | 11.8  | 131  | 480  | 79.2 | 61.3 | .    | 0.70  | 7.30  | 5 |
|                   | FMC 5318       | 63.4   | 44.1 | 61  | 2    | 1.90 | 11.9  | 141  | 473  | 80.3 | 60.8 | .    | 0.77  | 7.50  | 4 |
|                   | FMC 5666       | 63.1   | 51.3 | 82  | 1    | 1.80 | 12.5  | 130  | 509  | 77.7 | 60.5 | .    | 0.66  | 7.20  | 5 |
| UC 988            | 66.4           | 57.1   | 89   | 1   | 1.78 | 12.0 | 135   | 455  | 79.0 | 62.2 | .    | 0.68 | 6.90  | 3     |   |
| UC 989            | 63.2           | 50.3   | 73   | 2   | 1.86 | 11.6 | 131   | 467  | 78.9 | 61.6 | .    | 0.71 | 7.40  | 4     |   |
| APB 91-PS-1       | 63.4           | 38.3   | 49   | 3   | 1.86 | 12.0 | 133   | 420  | 80.5 | 61.3 | .    | 0.74 | 6.90  | 4     |   |
| APB FC#6          | 55.0           | 49.8   | 80   | 0   | 1.76 | 11.8 | 136   | 434  | 80.8 | 62.6 | .    | 0.69 | 7.10  | 4     |   |
| TITAN             | 65.9           | 54.3   | 87   | 1   | 1.63 | 12.3 | 164   | 406  | 79.5 | 62.0 | .    | 0.65 | 6.40  | 3     |   |

TABLE 17 CONTD

QUALITY DATA OF DURUM SAMPLES 1993 CROP  
STATE=CALIFORNIA STATION=IMPERIAL VALLEY NURSERY=ADVANCED

| -----VARIETY----- | STD | SEMO<br>PRO | VIS<br>COL | COOK<br>WT | FIRM-<br>NESS | RES<br>G | SCORE<br>*** | -----DEFICIENCIES----- |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 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 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| YECORA ROJO       |     | 11.2        | 6.10       | 32.5       | 4.97          | 5.3      | 1            |                        |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  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 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  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 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

## DEFICIENCIES

AVG OF STANDARDS 62.8 51.5 1 12.4 77.3 60.3 7.20 10.8 8.20 6.20  
MINOR FAULTING VALUES 60.6 49.4 6 12.5 74.8 57.3 6.95 11.5 7.95 4.70  
MAJOR FAULTING VALUES 59.7 46.4 11 11.5 73.8 56.3 6.75 11.0 7.75 3.95  
\*\*EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

QUALITY DATA OF DURUM SAMPLES 1993 CROP  
STATE=CALIFORNIA STATION=DAVIS NURSERY=ADVANCED

TABLE 18

| VARIETY        | TEST<br>WT<br>#/BU | STD | 1000<br>K.WT<br>G. | SIZING<br>LG<br>% | WHT<br>ASH<br>% | WHT<br>PRO<br>% | HARD-<br>NESS | FALL<br>NO<br>SEC | TOTL<br>EXTR<br>% | SEMO<br>EXTR<br>% | SPK | SEMO<br>ASH<br>% | DUST<br>COLOR | MIXO<br>SCORE |
|----------------|--------------------|-----|--------------------|-------------------|-----------------|-----------------|---------------|-------------------|-------------------|-------------------|-----|------------------|---------------|---------------|
| MEXICALI 75    | 61.8               |     | 53.5               | 88                | 0               | 1.67            | 12.8          | 163               | 83.8              | 67.3              | .   | 0.84             | 6.80          | 6             |
| ALDURA         | 63.4               |     | 52.6               | 83                | 0               | 1.62            | 12.7          | 148               | 84.2              | 66.3              | .   | 0.74             | 7.00          | 4             |
| YAVAROS 79     | 64.7               |     | 64.5               | 90                | 1               | 1.56            | 10.8          | 138               | 84.9              | 69.6              | .   | 0.67             | 6.40          | 4             |
| WESTBEB 881    | 62.0               | S   | 60.2               | 92                | 1               | 1.76            | 13.8          | 148               | 84.4              | 66.4              | .   | 0.80             | 7.00          | 8             |
| WESTBRED TURBO | 63.9               |     | 54.6               | 87                | 1               | 1.50            | 11.8          | 150               | 80.6              | 64.7              | .   | 0.69             | 6.80          | 5             |
| NUDURA         | 63.6               |     | 64.9               | 97                | 0               | 1.72            | 13.7          | 147               | 84.8              | 68.4              | .   | 0.80             | 6.90          | 7             |
| REVA           | 63.3               |     | 53.5               | 87                | 1               | 1.77            | 12.6          | 140               | 83.3              | 66.6              | .   | 0.83             | 7.00          | 6             |
| DUREX          | 61.8               |     | 58.5               | 93                | 0               | 1.71            | 13.2          | 151               | 84.5              | 66.9              | .   | 0.77             | 6.90          | 6             |
| FMC 5456       | 63.6               |     | 49.0               | 80                | 2               | 1.58            | 11.6          | 146               | 80.9              | 63.6              | .   | 0.73             | 6.80          | 4             |
| UC 907         | 62.8               |     | 62.5               | 92                | 2               | 1.75            | 12.8          | 150               | 84.0              | 66.1              | .   | 0.85             | 6.80          | 3             |
| UC 908         | 62.3               |     | 61.3               | 95                | 0               | 1.83            | 14.6          | 152               | 83.7              | 66.2              | .   | 0.87             | 6.70          | 3             |
| UC 910         | 63.7               |     | 49.8               | 87                | 0               | 1.81            | 13.4          | 146               | 82.9              | 63.9              | .   | 0.84             | 7.20          | 2             |
| WPB 8001       | 63.1               |     | 48.8               | 83                | 2               | 1.63            | 11.2          | 148               | 81.3              | 63.6              | .   | 0.80             | 7.00          | 3             |
| WPB 8003       | 61.6               |     | 54.1               | 86                | 1               | 1.65            | 12.3          | 141               | 83.0              | 65.1              | .   | 0.86             | 6.90          | 5             |
| FMC 5476       | 62.5               |     | 56.2               | 85                | 1               | 1.59            | 12.0          | 144               | 83.5              | 65.1              | .   | 0.77             | 7.20          | 6             |
| FMC 8869       | 63.0               |     | 54.3               | 84                | 1               | 1.64            | 12.6          | 158               | 83.1              | 67.3              | .   | 0.79             | 7.00          | 6             |
| ALDENTE        | 62.8               |     | 54.6               | 87                | 1               | 1.61            | 12.8          | 150               | 85.0              | 66.8              | .   | 0.76             | 6.90          | 6             |
| WPB 8005       | 64.2               |     | 50.0               | 81                | 1               | 1.65            | 12.1          | 140               | 81.6              | 64.4              | .   | 0.76             | 7.00          | 5             |
| WPB 8008       | 61.7               |     | 61.0               | 92                | 2               | 1.72            | 13.4          | 152               | 82.6              | 66.7              | .   | 0.81             | 7.10          | 7             |
| KRONAS         | 62.2               |     | 59.9               | 95                | 0               | 1.68            | 12.1          | 139               | 81.5              | 64.4              | .   | 0.77             | 7.00          | 5             |
| CONCORDE       | 64.3               |     | 54.3               | 88                | 1               | 1.58            | 12.0          | 147               | 83.8              | 66.9              | .   | 0.72             | 6.90          | 6             |
| OCOTILLO       | 63.2               |     | 52.9               | 86                | 1               | 1.71            | 12.6          | 146               | 82.3              | 65.2              | .   | 0.75             | 6.90          | 6             |
| WPB 8009       | 62.2               |     | 50.0               | 73                | 2               | 1.53            | 12.5          | 151               | 82.0              | 65.5              | .   | 0.75             | 7.20          | 6             |
| FMC 7172A      | 62.9               |     | 47.6               | 81                | 2               | 1.83            | 13.4          | 154               | 83.2              | 65.1              | .   | 0.80             | 6.50          | 5             |
| FMC 5237-1     | 62.0               |     | 54.3               | 87                | 1               | 1.74            | 13.5          | 159               | 82.5              | 66.0              | .   | 0.82             | 7.00          | 5             |
| FMC 5318       | 63.3               |     | 50.3               | 79                | 1               | 1.79            | 12.0          | 137               | 81.8              | 64.6              | .   | 0.76             | 7.30          | 7             |
| FMC 5666       | 61.7               |     | 59.5               | 94                | 0               | 1.74            | 13.4          | 134               | 82.2              | 66.0              | .   | 0.77             | 6.90          | 8             |
| UC 988         | 63.8               |     | 65.8               | 96                | 0               | 1.75            | 13.8          | 157               | 84.2              | 67.6              | .   | 0.87             | 6.70          | 7             |
| UC 989         | 60.8               |     | 54.9               | 86                | 1               | 1.70            | 13.6          | 151               | 82.0              | 65.0              | .   | 0.84             | 7.00          | 8             |
| APB 91-PS-1    | 62.9               |     | 46.9               | 80                | 2               | 1.72            | 12.0          | 139               | 82.1              | 63.8              | .   | 0.75             | 6.60          | 6             |
| APB FC#6       | 64.2               |     | 52.4               | 85                | 1               | 1.57            | 11.2          | 141               | 82.7              | 65.0              | .   | 0.73             | 7.00          | 5             |



QUALITY DATA OF DURUM SAMPLES 1993 CROP  
STATE=CALIFORNIA STATION=DAVIS NURSERY=ADVANCED

TABLE 18 CONTD

| VARIETY     | STD | SEMO<br>PRO<br>% | VIS<br>COL | COOK<br>WT<br>G. | FIRM-<br>NESS<br>G. | RES<br>G | SCORE<br>*** | DEFICIENCIES |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |    |
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|             |     |                  |            |                  |                     |          |              | TW           | KW | SM | WP | TX | SX | DU | SK | SP | VI | FR |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |    |
| MEXICALI 75 |     | 12.0             | 7.10       | 32.1             | 6.18                | 5.8      | 3            |              |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | </ |

DEFICIENCIES  
TW KW SM WP TX SX DU SK SP VI FR  
AVG OF STANDARDS 62.0 60.2 1 13.8 84.4 66.4 7.00 12.6 7.20 6.72  
MINOR FAULTING VALUES 59.8 58.1 6 12.5 81.9 63.4 6.75 11.5 6.95 5.22  
MAJOR FAULTING VALUES 58.9 55.1 11 11.5 80.9 62.4 6.55 11.0 6.75 4.47  
\*\*EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

QUALITY DATA OF DURUM SAMPLES 1993 CROP  
STATE=CALIFORNIA STATION=KINGS CO. NURSERY=ADVANCED

TABLE 19 CONTD

| -----VARIETY----- |  |  | STD | SEMO<br>PRO<br>% | VIS<br>COL | COOK<br>WT<br>G. | FIRM-<br>NESS | RES<br>G | SCORE<br>*** | -----DEFICIENCIES----- |    |    |    |    |    |    |    |    |    |    |
|-------------------|--|--|-----|------------------|------------|------------------|---------------|----------|--------------|------------------------|----|----|----|----|----|----|----|----|----|----|
|                   |  |  |     |                  |            |                  |               |          |              | TW                     | KW | SM | WP | TX | SX | DU | SK | SP | VI | FR |
| MEXICALI 75       |  |  |     | 12.0             | 7.70       | 31.1             | 5.79          | 5.8      | 1            |                        |    |    |    |    |    | MI |    |    | MI | MI |
| ALDURA            |  |  |     | 11.7             | 8.10       | 33.1             | 5.42          | 6.3      | 2            |                        |    |    |    |    |    | MJ |    |    | MI | MI |
| YAVAROS 79        |  |  |     | 11.2             | 7.50       | 31.9             | 5.83          | 6.1      | 1            |                        |    |    |    |    |    | MJ |    | MI | MJ | MI |
| WESTBRED 881      |  |  | S   | 13.4             | 8.10       | 30.7             | 7.45          | 5.8      | 4            |                        |    |    |    |    |    |    |    |    |    |    |
| WESTBRED TURBO    |  |  |     | 11.0             | 8.00       | 32.6             | 5.49          | 6.9      | 1            |                        |    |    |    |    |    |    |    | MJ |    | MI |
| NUDURA            |  |  |     | 13.3             | 8.10       | 31.5             | 7.13          | 6.0      | 4            |                        |    |    |    |    |    |    |    |    |    |    |
| REVA              |  |  |     | 12.9             | 8.00       | 31.9             | 6.24          | 6.5      | 3            |                        |    |    |    |    |    |    |    |    |    |    |
| DUREX             |  |  |     | 13.2             | 8.20       | 30.7             | 6.91          | 5.9      | 4            |                        |    |    |    |    |    |    |    |    |    |    |
| FMC 5456          |  |  |     | 11.7             | 7.80       | 32.5             | 5.68          | 6.2      | 1            |                        |    |    |    |    |    | MI |    |    | MI | MI |
| UC 907            |  |  |     | 11.5             | 7.50       | 31.0             | 6.96          | 5.9      | 1            |                        |    |    |    |    |    |    |    | MI | MJ |    |
| UC 908            |  |  |     | 11.8             | 7.60       | 31.5             | 6.31          | 6.7      | 2            |                        |    |    |    |    |    |    |    |    | MJ |    |
| UC 910            |  |  |     | 12.2             | 8.10       | 32.3             | 6.67          | 5.5      | 3            |                        |    |    |    |    |    |    |    |    |    |    |
| WPB 8001          |  |  |     | 12.1             | 7.90       | 35.7             | 6.29          | 6.4      | 3            |                        |    |    |    |    |    |    |    |    |    |    |
| WPB 8003          |  |  |     | 12.1             | 7.60       | 31.8             | 6.13          | 7.3      | 1            |                        |    |    |    |    |    |    |    |    | MJ |    |
| FMC 5476          |  |  |     | 11.6             | 8.10       | 31.9             | 6.03          | 6.3      | 4            |                        |    |    |    |    |    |    |    |    |    |    |
| FMC 8869          |  |  |     | 12.1             | 7.90       | 31.7             | 6.13          | 6.3      | 3            |                        |    |    |    |    |    |    |    | MI | MI | MI |
| ALDENTE           |  |  |     | 11.2             | 8.20       | 32.2             | 5.31          | 7.4      | 2            |                        |    |    |    |    |    |    |    | MI |    |    |
| WPB 8005          |  |  |     | 11.5             | 8.30       | 32.9             | 5.79          | 6.8      | 1            |                        |    |    |    |    |    |    |    | MI | MI |    |
| WPB 8008          |  |  |     | 12.9             | 8.30       | 31.5             | 6.78          | 6.5      | 4            |                        |    |    |    |    |    |    |    |    |    |    |
| KRONAS            |  |  |     | 12.0             | 8.50       | 32.3             | 6.03          | 6.4      | 4            |                        |    |    |    |    |    |    |    |    |    |    |
| CONCORDE          |  |  |     | 11.4             | 8.20       | 30.5             | 5.89          | 6.1      | 1            |                        |    |    |    |    |    |    |    | MI |    | MI |
| OCOTILLO          |  |  |     | 12.7             | 7.90       | 31.4             | 6.46          | 6.2      | 3            |                        |    |    |    |    |    |    |    |    |    |    |
| WPB 8009          |  |  |     | 11.3             | 8.40       | 31.2             | 5.44          | 6.3      | 1            |                        |    |    |    |    |    |    |    |    |    |    |
| FMC 7172A         |  |  |     | 12.5             | 7.60       | 32.1             | 5.83          | 6.2      | 1            |                        |    |    |    |    |    | MJ |    | MI | MJ | MI |
| FMC 5237-1        |  |  |     | 11.7             | 8.20       | 32.6             | 5.46          | 6.5      | 3            |                        |    |    |    |    |    |    |    |    |    |    |
| FMC 5318          |  |  |     | 11.7             | 8.20       | 32.1             | 5.85          | 6.2      | 2            |                        |    |    |    |    |    |    |    |    |    | MI |
| FMC 5666          |  |  |     | 12.2             | 8.00       | 31.6             | 6.42          | 6.1      | 4            |                        |    |    |    |    |    |    |    |    |    |    |
| UC 988            |  |  |     | 12.2             | 7.70       | 33.1             | 5.75          | 6.6      | 1            |                        |    |    |    |    |    | MI |    |    | MI | MI |
| UC 989            |  |  |     | 12.9             | 7.80       | 31.4             | 7.37          | 6.1      | 2            |                        |    |    |    |    |    |    |    |    | MI | MI |
| APB 91-PS-1       |  |  |     | 11.9             | 7.70       | 31.6             | 7.52          | 6.4      | 1            |                        |    |    |    |    |    | MI |    |    | MI | MI |
| APB FC#6          |  |  |     | 11.5             | 7.60       | 32.3             | 7.37          | 6.4      | 1            |                        |    |    |    |    |    |    |    | MI | MJ | MJ |

DEFICIENCIES TW KW SM WP TX SX DU SK SP VI FR  
AVG OF STANDARDS 62.7 60.2 0 14.6 75.0 59.1 7.30 . 13.4 8.10 7.45  
MINOR FAULTING VALUES 60.5 58.1 5 12.5 72.5 56.1 7.05 . 11.5 7.85 5.95  
MAJOR FAULTING VALUES 59.6 55.1 10 11.5 71.5 55.1 6.85 . 11.0 7.65 5.20  
\*\*EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

QUALITY DATA OF DURUM SAMPLES 1993 CROP  
STATE=CALIFORNIA STATION=KINGS CO. NURSERY=ADVANCED

TABLE 19

| VARIETY        | STD | TEST<br>WT<br>#/BU | 1000<br>K.WT<br>G. | SIZING<br>LG<br>% | SM<br>% | WHT<br>ASH<br>% | WHT<br>PRO<br>% | HARD-<br>NESS | FALL<br>NO<br>SEC | TOTL<br>EXTR<br>% | SEMO<br>EXTR<br>% | SEMO<br>SPK<br>% | SEMO<br>ASH<br>% | DUST<br>COLOR | MIXO<br>SCORE |
|----------------|-----|--------------------|--------------------|-------------------|---------|-----------------|-----------------|---------------|-------------------|-------------------|-------------------|------------------|------------------|---------------|---------------|
| MEXICALI 75    |     | 63.0               | 54.3               | 90                | 2       | 1.62            | 12.9            | 138           | 392               | 75.8              | 60.0              | .                | 0.68             | 7.00          | 5             |
| ALDURA         |     | 64.3               | 54.3               | 87                | 1       | 1.58            | 12.9            | 157           | 390               | 75.6              | 59.2              | .                | 0.61             | 7.30          | 2             |
| YAVAROS 79     |     | 65.6               | 57.8               | 89                | 1       | 1.46            | 12.2            | 151           | 425               | 75.8              | 59.8              | .                | 0.59             | 6.70          | 3             |
| WESTERED 881   | S   | 62.7               | 60.2               | 96                | 0       | 1.59            | 14.6            | 139           | 451               | 75.0              | 59.1              | .                | 0.67             | 7.30          | 8             |
| WESTERED TURBO |     | 64.0               | 54.1               | 85                | 1       | 1.47            | 12.0            | 152           | 410               | 76.5              | 59.8              | .                | 0.62             | 7.10          | 5             |
| NUDURA         |     | 64.3               | 66.7               | 98                | 0       | 1.72            | 15.0            | 151           | 415               | 76.1              | 58.5              | .                | 0.69             | 7.10          | 7             |
| REVA           |     | 62.9               | 50.3               | 82                | 1       | 1.68            | 13.4            | 143           | 411               | 76.4              | 59.8              | .                | 0.75             | 7.30          | 6             |
| DUREX          |     | 62.4               | 58.8               | 96                | 0       | 1.62            | 14.3            | 141           | 394               | 77.1              | 59.8              | .                | 0.67             | 7.20          | 7             |
| FMC 5456       |     | 64.5               | 52.9               | 88                | 1       | 1.50            | 12.6            | 151           | 402               | 78.3              | 62.5              | .                | 0.66             | 7.00          | 3             |
| UC 907         |     | 63.9               | 54.3               | 92                | 1       | 1.43            | 12.5            | 151           | 384               | 79.0              | 61.7              | .                | 0.72             | 7.20          | 3             |
| UC 908         |     | 63.8               | 58.1               | 91                | 1       | 1.52            | 13.2            | 151           | 380               | 81.3              | 65.0              | .                | 0.74             | 7.10          | 3             |
| UC 910         |     | 63.9               | 47.8               | 82                | 1       | 1.62            | 13.4            | 141           | 387               | 77.8              | 60.5              | .                | 0.75             | 7.60          | 2             |
| WPB 8001       |     | 62.7               | 46.3               | 68                | 2       | 1.51            | 12.8            | 134           | 386               | 77.9              | 60.6              | .                | 0.70             | 7.30          | 5             |
| WPB 8003       |     | 62.0               | 51.8               | 89                | 1       | 1.43            | 12.4            | 135           | 383               | 78.7              | 61.5              | .                | 0.72             | 7.10          | 6             |
| FMC 5476       |     | 63.9               | 55.2               | 89                | 1       | 1.47            | 12.1            | 142           | 412               | 80.5              | 63.4              | .                | 0.76             | 7.40          | 4             |
| FMC 8869       |     | 63.1               | 54.3               | 84                | 1       | 1.57            | 13.0            | 144           | 445               | 80.2              | 65.1              | .                | 0.74             | 7.10          | 5             |
| ALDENTE        |     | 63.9               | 56.5               | 89                | 1       | 1.45            | 12.3            | 142           | 389               | 75.5              | 58.5              | .                | 0.63             | 7.20          | 4             |
| WPB 8005       |     | 64.2               | 51.8               | 84                | 1       | 1.59            | 12.4            | 140           | 392               | 76.4              | 60.0              | .                | 0.68             | 7.30          | 5             |
| WPB 8008       |     | 62.5               | 62.1               | 94                | 1       | 1.54            | 14.0            | 152           | 400               | 76.5              | 60.7              | .                | 0.72             | 7.40          | 8             |
| KRONAS         |     | 62.8               | 58.1               | 93                | 1       | 1.52            | 13.3            | 142           | 472               | 77.3              | 60.0              | .                | 0.66             | 7.40          | 7             |
| CONCORDE       |     | 64.7               | 52.1               | 88                | 2       | 1.47            | 12.2            | 131           | 422               | 76.9              | 60.1              | .                | 0.65             | 7.30          | 6             |
| OCOTILLO       |     | 63.3               | 52.9               | 87                | 0       | 1.58            | 13.6            | 151           | 451               | 79.0              | 61.5              | .                | 0.67             | 7.10          | 7             |
| WPB 8009       |     | 64.0               | 52.6               | 85                | 2       | 1.38            | 12.3            | 151           | 492               | 77.3              | 61.5              | .                | 0.61             | 7.50          | 6             |
| FMC 7172A      |     | 63.7               | 47.8               | 78                | 1       | 1.63            | 13.6            | 147           | 441               | 78.8              | 60.8              | .                | 0.67             | 6.70          | 6             |
| FMC 5237-1     |     | 63.4               | 56.5               | 91                | 1       | 1.55            | 12.8            | 158           | 430               | 79.1              | 62.9              | .                | 0.69             | 7.30          | 6             |
| FMC 5318       |     | 63.0               | 46.7               | 71                | 1       | 1.67            | 12.7            | 148           | 420               | 78.3              | 61.2              | .                | 0.75             | 7.60          | 6             |
| FMC 5666       |     | 63.0               | 57.3               | 93                | 0       | 1.59            | 13.5            | 143           | 436               | 78.6              | 63.6              | .                | 0.70             | 7.20          | 7             |
| UC 988         |     | 64.8               | 59.2               | 95                | 0       | 1.52            | 13.3            | 144           | 407               | 80.3              | 64.7              | .                | 0.75             | 7.00          | 6             |
| UC 989         |     | 61.6               | 54.6               | 87                | 0       | 1.87            | 13.3            | 148           | 440               | 77.7              | 62.6              | .                | 0.79             | 7.30          | 6             |
| APB 91-PS-1    |     | 63.3               | 45.2               | 71                | 2       | 1.60            | 13.0            | 148           | 417               | 79.8              | 62.6              | .                | 0.74             | 6.90          | 6             |
| APB FC#5       |     | 63.6               | 49.8               | 83                | 2       | 1.51            | 12.3            | 145           | 467               | 80.9              | 64.1              | .                | 0.77             | 7.10          | 5             |



QUALITY DATA OF DURUM SAMPLES 1993 CROP  
STATE=ARIZONA STATION=TUCSON NURSERY=ADVANCE

TABLE 20

| -----VARIETY----- | STD | TEST<br>WT<br>#/BU | 1000<br>K.WT<br>G. | SIZING<br>LG<br>% | WHT<br>SM<br>% | WHT<br>ASH<br>% | WHT<br>PRO<br>% | HARD-<br>NESS | FALL<br>NO<br>SEC | TOTL<br>EXTR<br>% | SEMO<br>EXTR<br>% | SEMO<br>SPK<br>% | SEMO<br>ASH<br>% | DUST<br>COLOR | MIXO<br>SCORE |
|-------------------|-----|--------------------|--------------------|-------------------|----------------|-----------------|-----------------|---------------|-------------------|-------------------|-------------------|------------------|------------------|---------------|---------------|
| ALDURA            |     | 63.3               | 49.0               | 82                | 0              | 1.72            | 13.3            | 134           | 400               | 88.2              | 65.4              | 20               | 0.73             | 7.10          | 2             |
| WESTBRED 881      | S   | 62.9               | 56.2               | 91                | 0              | 1.76            | 14.2            | 126           | 400               | 81.2              | 63.8              | 47               | 0.72             | 7.10          | 6             |
| ALDENTE           |     | 63.1               | 54.1               | 90                | 0              | 1.69            | 13.3            | 137           | 400               | 81.2              | 64.6              | 30               | 0.72             | 6.90          | 5             |
| D5456             |     | 64.5               | 51.0               | 83                | 1              | 1.79            | 13.0            | 128           | 400               | 81.1              | 65.1              | 33               | 0.74             | 6.90          | 3             |
| D8869             |     | 62.7               | 51.0               | 80                | 0              | 1.78            | 13.7            | 117           | 400               | 79.8              | 63.7              | 40               | 0.73             | 6.80          | 4             |
| D7172A            |     | 63.8               | 43.3               | 67                | 1              | 1.88            | 13.8            | 131           | 400               | 77.1              | 63.6              | 37               | 0.73             | 6.60          | 4             |
| D8095             |     | 63.4               | 43.3               | 80                | 0              | 1.89            | 14.0            | 126           | 400               | 80.2              | 63.3              | 57               | 0.81             | 7.30          | 4             |
| D53188BW          |     | 63.7               | 48.3               | 83                | 0              | 1.94            | 13.3            | 130           | 400               | 80.8              | 62.3              | 50               | 0.80             | 7.30          | 4             |
| DUREX             |     | 62.9               | 54.6               | 93                | 0              | 1.77            | 14.0            | 129           | 400               | 80.9              | 63.5              | 53               | 0.71             | 7.00          | 6             |
| 8001              |     | 62.3               | 48.8               | 82                | 1              | 1.79            | 13.9            | 131           | 400               | 79.7              | 61.9              | 63               | 0.74             | 7.10          | 4             |
| 8003              |     | 61.2               | 49.8               | 86                | 0              | 1.88            | 14.2            | 127           | 400               | 80.4              | 63.3              | 37               | 0.81             | 6.90          | 6             |
| 8005              |     | 63.1               | 47.1               | 78                | 1              | 1.81            | 13.2            | 134           | 400               | 81.5              | 63.7              | 47               | 0.74             | 7.10          | 4             |
| REVA              |     | 62.5               | 50.3               | 84                | 1              | 1.93            | 14.2            | 127           | 400               | 80.0              | 62.5              | 53               | 0.80             | 7.00          | 6             |
| 8008              |     | 63.3               | 53.2               | 89                | 0              | 1.75            | 14.0            | 127           | 400               | 79.5              | 63.8              | 40               | 0.76             | 7.20          | 7             |
| WESTBRED TURBO    |     | 62.6               | 50.0               | 82                | 0              | 1.74            | 13.2            | 128           | 400               | 79.5              | 61.8              | 20               | 0.67             | 7.00          | 4             |
| KRONOS            |     | 63.3               | 60.2               | 94                | 0              | 1.77            | 14.1            | 130           | 400               | 78.5              | 62.0              | 30               | 0.68             | 7.20          | 4             |
| CONCORDE          |     | 64.4               | 52.1               | 91                | 0              | 1.79            | 14.5            | 131           | 400               | 79.9              | 62.1              | 13               | 0.69             | 7.00          | 7             |
| OCOTILLO          |     | 63.3               | 50.5               | 87                | 0              | 2.10            | 14.6            | 131           | 400               | 79.7              | 63.0              | 13               | 0.74             | 6.90          | 6             |
| 91-PS-1           |     | 63.1               | 42.4               | 67                | 0              | 1.85            | 13.7            | 125           | 400               | 81.5              | 63.6              | 27               | 0.73             | 6.70          | 4             |
| MEXICALI          |     | 63.0               | 54.3               | 87                | 2              | 1.75            | 12.6            | 126           | 400               | 80.6              | 64.8              | 37               | 0.73             | 6.70          | 4             |
| YAVAROS           |     | 65.3               | 57.3               | 89                | 0              | 1.63            | 12.1            | 125           | 400               | 81.0              | 65.0              | 20               | 0.67             | 6.50          | 2             |

QUALITY DATA OF DURUM SAMPLES 1993 CROP

STATE=ARIZONA STATION=TUCSON NURSERY=ADVANCE

TABLE 20 CONTD

| VARIETY | STD | SEMO |      | VIS  | COOK | FIRM- |      | SCORE | DEFICIENCIES |   |    |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ALDURA  |     | 12.1 | 7.90 | 32.4 | 6.50 | 6.5   | 3    |       |              |   |    |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

DEFICIENCIES

AVG OF STANDARDS 62.9 56.2 0 14.2 81.2 63.8 7.10 47 13.0 7.80 7.69

MINOR FAULTING VALUES 60.7 54.1 5 12.5 78.7 60.8 6.85 57 11.5 7.55 6.19

MAJOR FAULTING VALUES 59.8 51.1 10 11.5 77.7 59.8 6.65 62 11.0 7.35 5.44

\*\*EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE







